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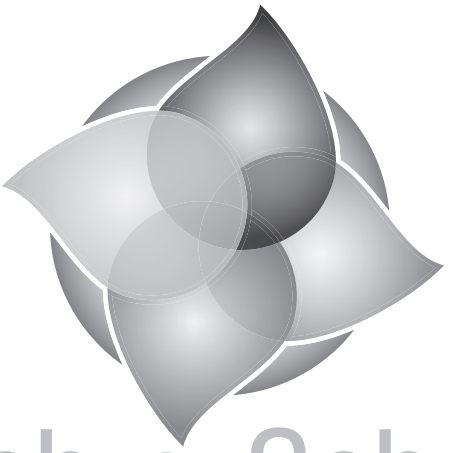
2016 Symposium Overview

Cedarville University

Seventh Annual



Research + Scholarship SYMPOSIUM

April 20, 2016

cedarville.edu/RSSymposium

PODIUM PRESENTATIONS

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Michaela S. Wade	Undergraduate Student	Music and Worship	A Historically Informed Performance of a Woman's Love and Life	Michaela S. Wade
	In order to give an outstanding performance of this celebrated song cycle, the most important thing, besides learning the music, is to learn the history behind it. It greatly helps the performer to have knowledge of the music, which in turn helps with communicating the narrative to the audience. The information presented in this paper is derived from scholarly journal articles and books by professors and historians who have studied Robert Schumann in the Romantic period and the influence of his German song cycles. The purpose of this paper is to examine the origin of the text used in Schumann's Frauenliebe und Leben. The paper will also discuss how Schumann, in his "year of song," set Chamisso's poetry to music in a most effective manner and introduce the possibility of two voices within the song cycle: the heroine as the main character and her husband-to-be, who is voiced by the accompaniment. It will also provide a brief analysis and an interpretation of the lyrics of the eight songs within the cycle. Understanding the artistry of the music in correlation with the meaning of the text will help the performer capture the variety of the intended emotions throughout the eight songs. The point of giving a historically informed performance is to provide the audience with every opportunity of understanding the thoughts and emotions the performer is conveying through the music, no matter the language.			
Rachel M. Schloneger	Undergraduate Student	English, Literature, and Modern Languages	Should English Spelling Be Reformed?: A History of English Spelling	Rachel M. Schloneger
	This paper explores the deep, and surprisingly informative, history of English spelling. It is a well-known fact that English spelling is confusing and troublesome for native speakers and non-native speakers alike. Its history is a winding road that ventures into various languages, picking up rules and idiosyncrasies along the way. The question facing linguists and other English language scholars is whether the system is worth keeping or if reformative measures are needed. In its history, English has overcome invasions, subjugation, and conversion efforts to become what it is today. In the past many individuals have suggested reforms and have had varying degrees of success. The position of many today is that wholesale reform would be lead to more problems than it would solve. They instead propose looking at the history and formation of the English language as a whole in the hope that understanding how words came into the language and how they changed since arriving can provide a method for making sense of spelling. This paper answers the question: Should English spelling be reformed?			
Brandon Best	Undergraduate Student	English, Literature, and Modern Languages	Tom Bombadil and Goldberry: Romantic Theology as Revelation in Tolkien's The Lord of the Rings	Brandon Best
	While the majority of literary critics suggest Tom Bombadil either subverts or dilutes Rivendell against Mordor, this essay analyzes Bombadil and Goldberry through the romantic theology of Charles Williams, Tolkien's fellow Inkling. Williams' romantic theology suggests romantic experiences reveal glimpses of perfection, suggesting the Hobbits' stay at Tom Bombadil's home within Withywindle reveals the ideal of salvation within The Lord of the Rings. Utilizing Williams' Outlines of Romantic Theology, this essay shows how Tolkien's vision for an ideal community guides Bombadil as the moral model for the rest of the free peoples to follow. While romantic theology clearly influenced other aspects of Tolkien's work, such as the relationships between Aragorn and Arwen as well as Beren and Luthien, applying this theory to Bombadil shows how coinherence, the giving and taking of love between free persons, manifests perfection. By demonstrating redeemed relationships to the Hobbits, Bombadil presents a moral ideal for Rivendell, central to understanding the moral war against Sauron.			
Stanley Schwartz	Undergraduate Student	History and Government	Inspiration or Distraction: Eugene Debs at the head of American Socialism 1895–1921	Stanley Schwartz
	This project seeks to provide historical context for the modern revival of avowed socialism in America through an examination of Eugene V. Debs leadership of American Socialism from 1895 to 1921. The paper argues that Debs' leadership of American socialism was unsuccessful because he left the critical task of convincing the American people that the ideology of socialism is correct and fundamentally different from traditionalism, capitalism, and progressivism, incomplete. Reform socialism did not distinguish itself from local progressivism, and revolutionary socialism adopted violent, opportunistic methods which prevented broad support. Debs' unique ideology of founding ideals, faith in democracy, and total societal transformation stood in the middle of these factions, offering distinction without danger. Unfortunately, Debs permitted party infighting and spent his energies in unwinnable presidential campaigns. This research hopefully provides insight about the uniquely American challenges and circumstances relating to socialism, relevant as avowed socialism has appeared in America once again through Bernie Sanders. Sanders falls into the category of reform socialism, slowly winning municipal and Congressional elections and fostering socialism's positive image. To establish socialism as a legitimate political entity, Sanders must move farther to the left, to ensure that the mainstream Democratic candidates do not appropriate the idea of free college without accepting its socialist ideology. Still, Sanders might find himself, like Debs, awkwardly positioned between reformers and revolutionaries, unable to convince America that the idea of abolishing private property will create utopia.			
Andrew R. Perkins	Undergraduate Student	History and Government	Not Written in Letters of Blood: The Forgotten Legacy of the Army of the Cumberland	Andrew R. Perkins
	There is a chapter missing in the annals of Civil War history. The story of an entire army, the Army of the Cumberland, is not being told. Instead, the army teeters on the verge of absolute obscurity due to three factors: poorly timed battles, personal feuds between Union officers, and the undue emphasis of Civil War historians on Southern Romanticism.			
Christian Ellis	Undergraduate Student	History and Government	An Examination of Abraham Lincoln's Racial Views	Christian Ellis
	Despite the overwhelming amount of writings that exist on the subject of Abraham Lincoln, there seems to be no clear consensus regarding what his personal views on race were. Depending on the work, Abraham Lincoln has been painted as either a color-blind Great Emancipator or a secret white supremacist who actively worked against the emancipation movement. With the recent debate over the Confederate flag and other race-related issues, the need to clarify the teachings on Lincoln has perhaps rarely been more relevant. This study examines his own writings, his public speeches, and the recollections of those who knew him best. His voting record as both a district and state Senator is also examined, and the claims made by some that these records show an inconsistency with his professed viewpoint are disproved. By examining these pieces of evidence a new viewpoint is discovered. This study shows that Abraham Lincoln was neither the heroic Great Emancipator of myth nor the secret white supremacist, but instead a man with much more complicated and nuanced views that ultimately desired the separation of the races so that both could flourish. These findings have been compared and contrasted with other works on the subjects and supported by quotes from Lincoln himself.			

PODIUM PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Anna Evans	Undergraduate Student	History and Government	Music in India: An Overview	Anna Evans
	Music is fundamentally connected to culture, providing a mirror that reflects a culture's philosophies, religion, social standards, and history. Unfortunately, this unique relationship is lost to the typical consumer of Western contemporary music. Refreshingly, the vast culture of India is intricately woven into the fabric of the rich diversity of the music that nation has produced in the past and continues to produce today. India's music, therefore, with even the briefest understanding of its heritage, provides the listener with a panorama of India's resplendent culture. This paper attempts to give a terse overview of those philosophies and structures found within Indian music. Attention will be given to its main components, its contrasts to Western musical tradition and the music produced by India today.			
Sorrel Paris	Undergraduate Student	History and Government	Christian Socialism: A Critique	Sorrel Paris
	Robert Owen said in 1816, "Society may be formed so as to exist without crime, without poverty, with health greatly improved, with little, if any misery, and with intelligence and happiness increased a hundredfold; and no obstacle whatsoever intervenes at this moment except ignorance." 200 years later, however, no such system exists. A society in which every need is met, every resource fully available, every talent fully utilized for good, may be considered the ideological pinnacle of human civilization, but the question of how to create such a utopia remains unanswered. Many modern intellectuals favor socialism or its more extreme descendent, communism, in their search for perfect government. Likewise, many Christian young people and scholars have a fascination with the concept of Christian socialism, synthesizing the ideals of communism with biblical statements about the ideal Christian life found in the gospels. Some scholars assert that the socialist ideal is the ultimate fulfillment of Jesus' command to love and serve one another – the Kingdom of Heaven here on earth. So such a society should promote the provision for all that a loving God would logically offer to the creation made in His image. Yet the socialist and communist world-views rest on flawed assumptions regarding the nature of man and thus consistently leave the masses unsatisfied and deprived. 'Christian Socialism,' has experienced a dramatic revival in recent years, resurrecting the 'social gospel' of Walter Rauschenbusch, through the writings of Jim Wallis among others; however, the biblical portrait of mankind is diametrically opposed to the theories upon which socialism stands. While the surface of this movement may appear consistent with the precepts taught by Christ, deeper examination of its theological, philosophical, and historical inconsistencies quickly reveals a pit of fallacy—a flawed foundation upon which adherents would build an unstable future. Half a decade ago, the Christian Anti-Communist Crusade and other scholars codified many of the objections to Christian socialism, but this research has since faded into obscurity as they were discounted as reactionary. However, given the cultural atmosphere and resurgence of the movement today, these writings deserve significant reexamination.			
Sarah R. Plumley	Undergraduate Student	Music and Worship	Coursing With Coils: The Only Orchestral Instrument Harder Than the French Horn	Sarah R. Plumley
	Playing the horn has become not only more sophisticated and accurate, but simpler and more efficient for the horn player than what it was three hundred years ago. The natural horn, used in a variety ways in early history, demanded an incredible level of skill and precision, more than our valved horn today in some ways because it required a more accurate ear, more embouchure dexterity, and the necessity of wrangling crooks for different keys. Thus, it required many practiced skills of the player that are no longer as necessary as they once were. This paper discusses each of these demands along with the history of the horn, its uses and popularity, and how it compares in construction to the valved horn.			
Rachel Stevenson	Undergraduate Student	Music and Worship	The Interwoven Evolution of the Early Keyboard and Baroque Culture	Rachel Stevenson
	The purpose of this paper is to analyze the impact that Baroque society had in the development of the early keyboard. While the main timeframe is Baroque, a few references are made to the late Medieval Period in determining the reason for the keyboard to more prominently emerge in the musical scene. As Baroque society develops and new genres are formed, different keyboard instruments serve vital roles unique to their construction. These new roles also affect the way music was written for the keyboard as well. Advantages and disadvantages of each instrument are discussed, providing an analysis of what would have been either accepted or rejected by Baroque culture. While music is the main focus, other fine arts are mentioned, including architecture, poetry, politics, and others. My research includes primary and secondary resources retrieved from databases provided by Cedarville University. By demonstrating the relationship between Baroque society and early keyboard development, roles, and music, this will be a helpful source in furthering the pianist's understanding of the instrument he or she plays. It also serves pedagogical purposes in its analysis of context in helping a student interpret a piece written during this time period with these early keyboard instruments.			
Joshua D. Drake	Undergraduate Student	Music and Worship	Birth of the Pipes: The Organ from Its Beginnings through the Baroque Era	Joshua D. Drake
	The purpose of this presentation is to survey the development of the organ, which is one of the most magnificent and impressive musical instruments known to man. The main objective is also to explain how and why the organ developed the way that it did. Further, the presentation will attempt to answer the following questions: What deficiencies in the performance of early organs were organ builders trying to improve on, what differences in sound did they want new organs to be able to produce, and how did the needs and preferences of organists influence changes in organ design? The majority of the research for this presentation centers on the scholarly contributions of C.A. Edwards, C. F. Abdy Williams, and Willi Apel. Specifically, the focus is placed on the designs and construction of a wide variety of organs. Hopefully, this presentation will result in a clear understanding of the distinctions between these instruments and the related pros and cons.			

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PODIUM PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Sean A. Kisch	Undergraduate Student	Music and Worship	In the Shadow of Petrucci: Why Attaingnant and His Methods Are Lost in History	Sean A. Kisch
	The music printing of Ottaviano Petrucci has been largely regarded by historians to be the most elegant and advanced form of music publishing in the Renaissance, while printers such as Pierre Attaingnant are only given an obligatory nod. Through historical research and a study of primary sources such as line-cut facsimiles, I sought to answer the question: How did the triple impression and single impression methods of printing develop, and is one superior to the other? While Petrucci's triple impression method produced cleaner and more connected staves, a significant number of problems resulted, including pitch accuracy and cost efficiency. Attaingnant's single impression method solved most of these difficulties, while only sacrificing a small amount of visual aesthetic. Despite these advancements, Petrucci managed to dominate the music publishing industry in Venice during his lifetime while Attaingnant achieved success to a lesser degree. Based on an overview of their business skills, I concluded that Petrucci obtained this success through his twenty-year legal monopoly in Venice, and by staying in tune with his clients, needs and printing music that was in demand. The single impression method of Attaingnant outlasted the triple impression method of Petrucci because his technology was more efficient and accurate, but Petrucci was more successful during his time because of his business skills.			
Jillissa A. Brummel	Undergraduate Student	Music and Worship	From Sin to Sensation: The Progression of Dance Music from the Medieval Period Through the Renaissance	Jillissa A. Brummel
	This research paper explores how dance music has been part of the foundation for musical art in world history and the key to unlocking information concerning societal atmospheres throughout history. With each age and progression of music came new genres, instruments, and social beliefs that were woven through religious and secular culture, each of which impacted the production of dance throughout the centuries. As dance music infiltrated the social and religious scenes of the medieval period, the sacred value of dancing was questioned, which are presented through historical sources on pagan culture in the medieval period. Further research on improvements of instrument mechanics in dance music and dance forms are presented through medieval to Renaissance manuscript publications and writings of Guillaume de Machaut, a historically acclaimed figure. Dance forms, instruments, and choreography sought much revision between the two periods, and with the invention of the printing press and common access to publications, drastic innovations in dance culture and music literature were made moving into the Renaissance period. Therefore, the art of music has seen much diversity and change throughout history, causing each individual dance genre to be created and shaped into a product fitting for the time. Because dance music gained historical importance since the medieval period, its rapid progression through oral tradition, religious tradition, and social environments reached new heights in the social and musical life from Medieval times though the Renaissance period.			
Jonathan M. Lyons	Undergraduate Student	Music and Worship	From Silence to Golden: The Slow Integration of Instruments into Christian Worship	Jonathan M. Lyons
	The Christian church's stance on the use of instruments in sacred music shifted through influences of church leaders, composers, and secular culture. Synthesizing the writings of early church leaders and church historians reveals a clear progression. The early musical practices of the church were connected to the Jewish synagogues. As recorded in the Old Testament, Jewish worship included instruments as assigned by one's priestly tribe. Eventually, early church leaders rejected that inclusion and developed a rather robust argument against instruments in liturgical worship. The totalitarian stance on musical instruments in sacred worship began to loosen as the organ increased in use and popularity. Organs began to find a more regular place in churches by the twelfth century. While organ music set a precedent which will later allow for the entry of other instruments into the sanctuary, it took quite a while to do so. As the Protestant Reformation changed the face of the church, Martin Luther served a crucial role, not just as a theological leader, but also as the center of a new musical movement in the church. This Reformation began a series of reactions that eventually leads to the church's general acceptance of instruments in sacred worship.			
Kirsten E. Saur	Undergraduate Student	Music and Worship	Swing It Sister: The Influence of Female Jazz Musicians on Music and Society	Kirsten E. Saur
	Female jazz vocalists, both as soloists and in groups, and instrumentalists, both as solo artists and in ensembles, of the jazz era influenced music and society in their own times and in later times. They added new musical concepts, added new vocal styles, worked to change the society they lived in, and worked hard to find their place in music no matter what got in their way, making them inspirations for future generations of women striving to succeed in the world. This paper looks at how these women of jazz influenced music, society, and future generations of women through their journeys through life and the mark they left on jazz music. This is done by looking at various artists such as Ella Fitzgerald, Florence Mills, Bessie Smith, and Billie Holiday, and at various bands and instrumentalists of past and present.			
Brandon Apol	Undergraduate Student	Music and Worship	Sing About Me: Kendrick Lamar in Posterity	Brandon Apol
	Sometimes it would seem that the quietest moments turn out to have the loudest repercussions. This would certainly seem to be a consistent case for 28-year-old Kendrick Lamar, whose career has been defined by surprise and unannounced publications of music that shortly afterward are spun wildly into massively respected works of art. With an album that no one anticipated going to the 2013 Grammy awards, an album that leaked a week ahead of schedule (and brought Kendrick five Grammys), and an album that was released with almost no warning whatsoever, Kendrick Lamar Duckworth makes headlines with his art; of this there is no doubt. The question, however, as posed by Kendrick himself, is this: "And I hope that at least one of you sing about me when I'm gone; Am I worth it? Did I put enough work in?" I would like to argue that Kendrick Lamar belongs in music history textbooks of the future because of his performance abilities, intellectual and lyrical content (particularly relative to his peers), musical push within the rap genre, and his position with critics and fans alike.			
Alisha Symington	Undergraduate Student	Music and Worship	Music and Athletics: An Inseparable Bond	Alisha Symington
	Music is so deeply ingrained in nearly every part of our culture, it sometimes passes by unnoticed. However, if one were to remove music from its typical appearance, the resulting silence can be deafening. For example, in a film, such as Star Wars, if the main theme did not exist, the anticipation of the film and the overall reaction to the plot would be far less appealing. If clothing stores did not play spunky electronic music, would consumer's shopping habits be altered? A strongly universal and historic aspect of culture that a lack of music would dramatically is the world of athletics. How is it that music and athletics became so passionately entangled throughout history? Emotions and psychological responses to music and athletics have always affected society, but only fairly recently have psychologists published extensive research on the topic. Because of these modern studies on music and sports psychology, we can better understand the correlation between these two aspects of culture throughout history. Ancient Greece holds the secret in the development of both the written music and organized athletics as we know them today. In the history of Greece, combined with wisdom from Plato, a fascinating correlation between early music and athletic competition can be found. The result of this study is not only fascinating, but could be very important in the lives of athletes and their coaches. This information will assist athletes in choosing warm-up and program music that will guide their bodies physically and mentally to athletic perfection.			

PODIUM PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Janelle R. Finley	Undergraduate Student	Music and Worship	From Bows to Sound-chests: Tracing the Ancestry of the Violin	Janelle R. Finley
	The subject of the ancestry of the violin is something that has been largely studied, researched, debated, and written about in great detail. However, despite all of the research and study, the ancestry of the violin is still not certain. This paper first presents two different schools of thought, each proposing different theories as to how the ancestry of the violin should be determined and what instruments should be included in the ancestry of the violin. The first school of thought proposes that the violin's ancestry should be traced through the bow. The second theory proposes that the violin's ancestry should be traced through the sound-chest of the violin. This paper secondly presents the different arguments for and against each theory, the importance of this topic, and the paper's position on this topic. Research for this paper was accomplished through the use of scholarly books on the subject of the history of the violin.			
Josiah Keith	Undergraduate Student	Music and Worship	Identity in Music	Josiah Keith
	Whether consciously or not, every person answers the question, "who am I?" Every mundane action, every syllable spoken, and even every event that affects someone, contribute to the realization of "who I am." The answer to this question is always an individual's identity. Identity helps a person achieve a desired social acceptance or success in a certain field. Much of the same can be said for the identity of a group. Different groups throughout history have constantly been fighting for their place in history. The identity of a group is based on the values that they hold, their ideals, actions, and involvement with society. Each group, whether it is Christians or vegetarians, is assimilated into society. In order for the assimilation to be successful, the values of the group must be either tolerated or accepted by the majority of outsiders. This is usually not a problem; however, when a minority group is trying to find its place in society, there must be a shift in the ideals that are shared by society. Because society's ideas are constantly shifting, it is clear that there are agents of this change. One of these agents is music. This piece will examine the civil rights movement of the 1950s and '60s and the gay rights movement to exemplify how music has been used to advance a minority group.			
Hannah M. Rinehart	Undergraduate Student	Music and Worship	"Musical Fury": Impressing Through Expressing in Baroque Improvisation	Hannah M. Rinehart
	Baroque music experienced a dramatic change in performance practice which sprang out of certain techniques used in the Renaissance period and the emphasis placed during this time on expression and emotion in music. In the Baroque time period, much emphasis was placed on expression, emotion, and creativity in both the academic sphere and in the arts. In the arts this can be seen in elaborate and decorative architecture, emotional and expressive paintings, and creative and individualized music. Music itself developed from the simple, structured forms of the Renaissance period to the driven, complex, emotional and expressive forms of the Baroque period. One of the main features of this period which encouraged such an attitude and supported its growth was improvisation and this paper is based on historical documented evidence concerning improvisation. The Baroque time period saw a rise in the importance and use of improvisation in melodies, accompaniments, and in performance practices because individual expression and emotion was highly valued in the Baroque years. The purpose of this paper is to prove the previous statement by tracing the development of improvisation from the Renaissance to the Baroque periods and by looking at the attitudes of composers, musicians, and music theorists toward music, specifically concerning its emotive capabilities and responsibilities.			
Nate J. Chester	Undergraduate Student	Music and Worship	An Unusual Success: A Study of Modern Pop Music	Nate J. Chester
	This research paper explores modern pop music's ability to quickly capture the attention of listeners. Its purpose is to provide evidence that explains the success of pop songs through the recording industry's advanced methods of production. This paper discusses the perfected ability of these methods to quickly "hook" the listener and potentially result in a viral dissemination of the music through a combined use of modern technology. Evidence is shown both through the study of these methods and through the examination of specific examples in seeking to identify the reasons behind the success of this music. An emphasis is placed on the songs which have found their success through viral outbreaks because of their unusually quick success. The goal of this paper is ultimately to explain why these songs have seen an extraordinary amount of success despite their simple structure and often absurd lyrical content.			
Calvin Hitchcock	Undergraduate Student	Music and Worship	Musica in tempore belli: An analysis of "Black Angels"	Calvin Hitchcock
	Described as "…extraordinarily haunting" and "[the] intoxicating magic of…sound"(Steinitz, 1978). the music of George Crumb is some of the most evocative and expressive music of the 20th century. His extensive use of extended techniques (many of which he pioneered) is in part what makes his music so memorable. Also known for its liberal use of theatricality, Crumb's music has become a standard of the 20th century, as well as in the contemporary music canon overall. "Black Angels" for Electric String Quartet, subtitled "Thirteen Images from the Dark Land" was written as a response to the Vietnam War and is one of Crumb's best known and respected pieces. This paper will examine the compositional approach taken in "Black Angels," as well as analyze the musical and harmonic structure governing the piece.			
Kaleigh M. Kenney	Undergraduate Student	Music and Worship	Life-Like: American Society and the Early to Mid-Twentieth Century Musical	Life-Like: American Society and the Early to Mid-Twentieth Century Musical
	While entertainment is usually seen as a distraction from people's everyday lives, it is actually more accurate to see it as a reflection of the society and culture from which it came. This is especially true for the genre of musical theatre, which has been known to be both shaped by culture and a commentary on it. This presentation seeks to examine the interaction between the culture and mindset of America from the early to mid-twentieth century and the musicals of that time period. This can be seen especially when it comes to the subjects that the writers of these productions have chosen to present. The presentation also acknowledges important events of this time period in America, such as the World Wars and the Great Depression, and how the musicals of this time period reflect the reaction of the American population to these events. Common ideas of the time period, such as nationalism, racism, xenophobia, and others are also examined throughout this work through their representations on the Broadway stage.			

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PODIUM PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Brittney S. Mitchell	Undergraduate Students	Music and Worship	The Secret Society of Opera	Brittney S. Mitchell
	Opera, perhaps fittingly described as an eclectic compilation of philosophy and Greek theatre, emerged in Florence Italy during the late Renaissance. This paper is essentially an observation of such activities attributed to a scholarly salon known as the Florentine Camerata. The Florentine Camerata was in fact a large series of scholarly salons throughout the Florence area. Many of their activists were amongst Florence's greatest scientists, philosophers, and artists. This paper covers the inner workings of one specific Camerata that created the very first operas. Then, one of the key attributors; Claudio Monteverdi, continued that tradition with his own developments. Monteverdi would make for himself the name "The First Great Opera Composer." This paper also contains an evaluation of how the traditions founded in the Camerata then developed by Monteverdi were continued and/or changed throughout the late Baroque and early Classic periods. It becomes apparent that the desire to make music more and more dramatic results in more developments in opera like Opera Seria and Opera Buffa. Overall, this paper is a study on opera's founding and developments into the proceeding Baroque and Classic periods. It is intriguing to see how the founding traditions laid forth by the Florentine Camerata take new form as the Opera baton is passed throughout the centuries"			
Daniel Galey	Undergraduate Students	Music and Worship	Improvisation: The History of Unplanned Notes in Structured Music	Daniel Galey
	Since improvisation is an important aspect of music in today's society, questions arise whether improvisation was essential in music from the past or whether it even existed in the past. Rather than discussing the origin of improvisation, this paper will discuss the evolution of improvisation starting in the medieval period. This paper argues that improvisation did exist in the medieval period, and seeks to show certain ways in which it was evident and how it developed in the Renaissance and Baroque periods. Many historically documented books discuss the music from different time periods. I specifically study the aspects of music from each period that deal with any relationship to improvisation. First, I discuss a working definition for improvisation that may change from period to period. I present that improvisation was clearly evident in the medieval period and display ways in which it was manifested. Next, I show that improvisation developed in the Renaissance and did not disappear. I offer examples that show improvisation in ways that differ from the medieval period. Finally, I analyze several different ways in which it was evident in the Baroque period. I provide examples and show that improvisation continued to manifest itself in new forms. These illustrations indicate that improvisation was clearly an integral part in the music of the past. From this research, I draw the conclusion that improvisation has existed as far back as the medieval period, and has continued to develop in the Renaissance and the Baroque.			
Joshua Taylor	Undergraduate Student	Music and Worship	Musically Russian: Nationalism in the Nineteenth Century	Joshua Taylor
	What does it mean to be Russian? In the nineteenth century, Russia saw a growth in nationalism. Intellectuals began producing literature, music, and artwork that represented Russian culture and served to separate them from France. In particular, music was a driving force in creating nationalism. Russian thought regarding national culture creation in the nineteenth century reflected the idea that every people group has a unique musical style. The influence of Russian musical style can be seen in the works of Musorgsky, Tchaikovsky, and Rimsky-Korsakov. Each of these composers contributed to nationalism in their own unique way.			
Thomas Fisher	Undergraduate Student	Science and Mathematics	Associations of Religious Involvement and Mortality: A Critical Review	Thomas Fisher
	In this review we address the conflicts of previous research on associations between religious involvement and longevity. We will also discuss causes of conclusional variance within these studies. Our study of inconclusive research will equip individuals with insight about sources of disagreement and origins of variance within empirical studies on religiosity and longevity. A wide variety of sources were selected to represent the diversity of findings. Most selected studies identified psychosocial elements of religiosity and proposed a positive, negative, or no correlation with longevity. We reviewed the validity of each study and analyzed the proposed association with longevity. Numerous methodologically sound studies reported that religious faith decreases the risk of morbidity, while other studies proposed that religious faith increases the risk of morbidity. Causes of substantial disagreement among well-conducted studies include challenges in developing reliable and valid measures of religiousness, confounding variables not well identified and controlled, sampling bias in study groups, and overstatement of conclusions without nuance. Consistent, unconfounded evidence is needed before a definite conclusion can be reached.			
Ryan Cushman, Adam J. Hammett	Faculty, Undergraduate Student	Science and Mathematics	On a Multiple-Choice Guessing Game	Ryan Cushman, Adam J. Hammett
	We consider the following game (a generalization of a binary version explored by Hammett and Oman): the first player ("Ann") chooses a (uniformly) random integer from the first n positive integers, which is not revealed to the second player ("Gus"). Then, Gus presents Ann with a k-option multiple choice question concerning the number she chose, to which Ann truthfully replies. After a predetermined number m of these questions have been asked, Gus attempts to guess the number chosen by Ann. Gus wins if he guesses Ann's number. Our goal is to determine every m-question algorithm which maximizes the probability of Gus winning the game. A natural extension of this game is also discussed.			
David M. Anson, Samson Amos, Robert L. Paris, Denise S. Simpson	Faculty, Undergraduate Student	Science and Mathematics	The Effect of Luteolin on Human Glioblastoma	David M. Anson, Samson Amos, Robert L. Paris, Denise S. Simpson
	Glioblastoma multiforme (GBM) is widely recognized as the most common and lethal of the malignant gliomas. Few effective therapeutic treatments are available as five-year survival rates of diagnosed individuals are less than five percent. Luteolin, a common flavonoid found in a variety of fruits and vegetables, has demonstrated significant promise in combating cancers of the breast, colon, liver, lung, and bone. In this study, we investigated the effects of luteolin on glioblastoma multiforme cell lines U-251, U-87, and U-1242. Cell viability was assessed using cell count with trypan blue exclusion and MTT assays. Results revealed that luteolin reduces GBM cell viability and cell proliferation in a time and concentration-dependent manner. Western Blot analysis indicated that luteolin decreased AKT, ERK, and MAPK phosphorylation following treatment with EGF. Additionally, luteolin promoted apoptosis in GBM cells by inducing PARP and caspase-3 cleavage, and decreasing levels of the anti-apoptotic protein BCL-XL. Our results indicate that luteolin exhibits a biological effect and may be used as a therapeutic agent for glioblastoma multiforme.			

PODIUM PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Jessica Schneider, Molly Stark, Yi-Wen Chin, Jillyan Misiak	Undergraduate Students	Social Work	The Syrian Refugee Crisis	Jessica Schneider, Molly Stark, Yi-Wen Chin, Jillyan Misiak
	Our primary goal in this presentation is to provide a comprehensive review of literature as it pertains to the influence of the Syrian refugee crisis in Jordan, Turkey, and Germany.These countries have experienced an enormous influx of refugees, which has caused a need for economic and political concern. First, we will examine the history of the Syrian Civil War that led to the displacement of Syrian individuals and families. Second, we will evaluate the effects of Syrian migration on the economical and political situation in Jordan, Turkey, and Germany. We will discuss the various policies implemented in each of the countries that either hinder or promote development and sustainability due to the change in population. We will propose policies that are both beneficial to the structure of these countries and supportive of the humanitarian well-being of the refugees themselves. In conclusion, we will discuss the implications that the refugee crisis has on the U.S. as well as practical steps we can take in our locally to support the incoming Syrian refugees who will resettle in our communities.			
Joy Lindner, Jenna Parker, Sara Rogers, Erin E. Scott	Undergraduate Students	Social Work	Conflict Minerals	Joy Lindner, Jenna Parker, Sara Rogers, Erin E. Scott
	This presentation will include an extensive review of literature of Conflict Minerals, particularly situations occurring in the Democratic Republic of Congo. Conflict minerals, as defined by Salem Press Encyclopedia are raw minerals that derive from areas of armed conflict. The presentation will examine the history of the Democratic Republic of the Congo, conflict minerals and its intersection with militant groups and the recovery process. We seek to portray historical events that led to this conflict and discuss current initiatives to combat this important social issue. Our goal is to raise awareness of the far reaching impact of this conflict on the Congolese people and other nations. We also aim to educate about ways to affect change.			
Susanna R. Mathew, Rachel Accas, Jervonne Ward, Ellery Kent	Undergraduate Student	Social Work	Foreign Aid	Susanna R. Mathew, Rachel Accas, Jervonne Ward, Ellery Kent
	While foreign aid is generally thought of as a positive means to help the poor, in many areas it may do more harm than good. This presentation will provide a review of literature that focuses on the effects of foreign aid on developing economies. This presentation will highlight some harmful examples of global foreign aid by highlighting these examples in several different countries. First, the presentation will discuss the history and development of America's foreign aid. Secondly, the presentation will highlight the positive and negative effects of foreign policies. Third, the presentation will consider a more recently developed form of foreign aid through supporting locally owned business in developing countries. Lastly, we will emphasize the importance of empowering communities through evidence-based foreign aid practice and provide information on ways to get personally involved.			
Kylie E. Faxon, Daejanna Preston, Amanda Stables, Sarah Powazki	Undergraduate Student	Social Work	Transnational Terrorism	Kylie E. Faxon, Daejanna Preston, Amanda Stables, Sarah Powazki
	The goal of this presentation is to review the literature regarding transnational terrorism. We hope to identify four aspects of terrorism within the United States, the Middle East, and Nigeria. We will explore homeland attacks and recruitment in the United States, the Middle East as an active site of terrorist origins, and Nigeria where the terrorist group Boko Haram has violated the country's safety and rights. First, we will look at the history of terrorism and its origins. Second, we will discuss the environmental and psychological factors that lead to the formation of terrorist groups and the goals behind their actions. Third, our presentation will discuss the recruitment tactics of radical terrorist groups and the efforts used in persuading individuals to join forces. Lastly, we will discuss the human rights violations that are committed through terrorist acts. Through providing awareness and education of these four main aspects of terrorism, we strive to provide practical application for community and global efforts.			
Brittany Kopas, Bethany Hull, Maggie Weyandt, Jessica Rabenstein	Undergraduate Student	Social Work	The Impact of Kinship Care on Children	Brittany Kopas, Bethany Hull, Maggie Weyandt, Jessica Rabenstein
	Our presentation examines the dynamics of kinship care in three regions of the world. The following countries were chosen due to the extensive contrasting research available regarding kinship care values, practices, and experiences. In light of these factors, personal interest was also utilized to identify three unique countries: Australia, Kenya, and the United States. The literature reflected that the value placed on the family unit remains firm despite region specific differences. We uncovered the prevalence of kinship care in these three specific countries to highlight underlying causes and lasting effects on the family unit. The Australian kinship care system has been seen as a positive alternative to foster care, and is promoted by the Australian government. Whereas in the United States, the government is hesitant to endorse informal kinship care, since it limits its ability to regulate the systems' practices and policies. In the middle of the spectrum, research suggests Kenya has embraced the practice of kinship care as a social norm and necessity. Kenya's unique situation highlights the effectiveness of kinship care despite extensive negative outcomes. It is our hope to present a review of literature that shows, despite cultural differences, the value upon the family unit exists throughout all three regions. With this knowledge, we hope to provide a balanced perspective of both the drawbacks and benefits of kinship care.			

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POSTER PRESENTATIONS

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Lorna C. Timmerman, Ruth E. Jefferson	Faculty	Education	Anxiously Anticipating! A Parallel Journey to an Art and Equestrian Camp for Children with Disabilities	Lorna C. Timmerman, Ruth E. Jefferson
	In many communities, there are few opportunities for children with disabilities to participate in engaging summer camp experiences. This poster will highlight one successful endeavor that provided this much-needed opportunity to children with disabilities. Little has been explored regarding how parents go about preparing their children for the camp experience that is to come; and few studies have documented the planning and preparation by camp staff. This presentation will explore one family's efforts to prepare and support a child's first venture into organized summer programming. At the same time, this presentation will detail the preparation (and surprising level of anxiety) of the staff that provided the camp as a service learning project. After careful selection and training, undergraduate students became day camp counselors for an immersive service learning experience where they planned and implemented a two-week day camp for schoolchildren with mild disabilities. Campers, counselor, and volunteers alike learned valuable social and academic enrichment skills during the camp experience, but did report mild to moderate anxiety associated with anticipating their involvement in the project. During the months preceding camp, journal and diary entries detail the ups and downs of camp preparation as well as the actual daily camp experience, describing the growth that occurred in both the campers and the counselors. These journal entries and practical suggestions for camp planning and camper preparation give voice to the camp experience through two perspectives – the camper/parent and the camp team. Service learning can take many forms and serve diverse purposes and populations. This Poster documents the process of combining service learning with the provision of summer camp experiences for underserved populations - an exciting venture! This particular service learning experience – an equestrian, art, and science camp – enabled college students to learn new skills, enhance leadership abilities, develop important personal attributes, and widen their understandings of diverse populations. The same project enabled this camper, and many others, to make new friends, develop recreational competencies, and take risks in a safe environment. Perhaps, though, the greatest benefit to all was that intangible, mysterious experience that everyone needs to discover from time to time – fun!			
Frederick G. Harmon, Jared Newman, Grayson Dearing, Luke Tomlinson	Faculty, Undergraduate Student	Engineering and Computer Science	AC Power Monitoring System	Frederick G. Harmon, Jared Newman, Grayson Dearing, Luke Tomlinson
	Motivated by high energy costs, people and organizations want to cut back on their energy consumption. However, the only feedback consumers typically receive is a monthly bill listing their total electricity usage (in kWh). Some companies have begun developing systems that allow households and organizations to monitor their energy usage for individual circuits. Available systems are expensive so a CU engineering senior design team has designed, fabricated, and tested a system for use at Cedarville University. The AC power monitoring system has the ability to measure energy consumption for each individual circuit in the breaker panel, store the data, and then provide the user with visual feedback on energy usage behavior. The basic system provides the proof of concept for future senior design teams. After more testing is completed, further development of this product will be needed by other senior design teams. Eventually, this energy monitoring system could be expanded to include larger loads such as HVAC systems and refrigeration units. It is also envisioned that future projects might be able to provide the user with suggestions for changing and improving energy usage behavior. Failure prediction of equipment on individual circuits could also stem from this initial project. For this project, it has been clearly shown that the concept is feasible, expandable, and cost-effective.			
Schuyler E. Price, Lorrin Schoeneweis, Hannah Steele, Timothy L. Norman	Undergraduate Student	Engineering and Computer Science	Spinal Implant Design and Subsidence	Schuyler E. Price, Lorrin Schoeneweis, Hannah Steele, Timothy L. Norman
	A spinal implant may be used in people who have diseased or injured intervertebral discs pushing against their spinal cord and nerves, causing them loss of sensation due to nerve impingement. Patients who have not found relief through non-surgical means may require a discectomy, which removes the disc and relieves the pressure. There are several ways to then fill the resulting gap which include fusion devices, artificial disc replacement (ADR) devices, or bone grafts. Our study focused on the first two mechanical options. Subsidence, or the vertical movement of the device into the adjacent vertebral bodies, is an often reported mechanical adverse event for current FDA-approved devices. Our goal was to find how geometric parameters influence subsidence of spinal fusion and ADR devices. Following ASTM F2267, we tested devices which held specific geometric parameters constant while varying others. Several conclusions resulted from these tests, drawn from an understanding of load-displacement curves. It was found that devices with a larger contact area subside less and that subsidence is not a function of sagittal profile, but rather of contact area between vertebral endplates and the intervertebral device. With respect to ADR devices with fins, subsidence is a function of how much bone is removed. For these implants with rectangular extruded fins, volume is the primary indicator of subsidence over fin number and length. Similar experiments were conducted with paired porcine vertebrae in order to support the conclusions drawn from ASTM F2267 testing and provide an in vitro study of subsidence. With this in vitro study, additional conclusions include the use of fins for stability and the importance of the decortication and rasping surgical procedures. The results of these tests provide an understanding of how specific geometric parameters can be varied to reduce subsidence of intervertebral disc replacement devices in the spine.			
Sam Stanaford	Undergraduate Student	Engineering and Computer Science	Finite Element Analysis of Spinal Implant Design	Sam Stanaford
	Artificial disc replacement and intervertebral fusion devices are alternatives to pain and spinal instability when disc failure occurs. Understanding the mechanical performance of these devices can be achieved by long-term clinical studies, costly experimental studies, or through numeral analysis using finite elements. This study was conducted to study the subsidence, or vertical motion, of the artificial disc or fusion device into adjacent vertebral body segments. Specifically, the effect of implant size, shape, and sagittal profile was studied using a finite element model of the L4/L5 human spine using ABAQUS finite element software. Results compared the stress state and subsidence across spinal implant design parameters investigated.			

POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Sarah E. Orr	Undergraduate Student	Kinesiology and Allied Health	The Effects of Social Support on Compliance In Rehabilitating Collegiate Athletes	Sarah E. Orr
	The purpose of the study was to better understand if social support has an effect at all on the athlete's compliance in coming in to do their rehabilitation during an injury. Those who participated in this study were from colleges and universities in the state of Ohio. The participants were collegiate athletes who were in a rehabilitation program for six or more weeks and had returned to play. Of the 56 surveys returned, 18 (32.14%) of those were fully completed, and nine (16.07%) of those, consisting of seven (77.78%) females and two (22.22%) males, met the criteria set. Athletes were "strongly satisfied" with the listening support that they received from their friends and athletic trainer (6 count each), seven athletes found it "very easy" to obtain more listening support from their athletic trainer, and six athletes answered "very much" for their athletic trainer for the questions on each persons contribution of listening support to their overall well-being. Athletes were then asked how they felt the social support they did receive impacted their desire to be compliant. A total of 89% answered yes with giving responses that had common themes such as: they felt encouraged, it was helpful, they were feeling stronger and better, and it motivated them. Those who answered no (11.11%) responded that the social support did not have an impact on their desire to attend rehabilitation due to the fact that they felt "self-motivated." The definition of social support that was used was an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well being of the recipient. The definition of compliance that was used was the behavior an athletes demonstrates by pursuing a course of action that coincides with the recommendations of the clinician. It was found that there is a relationship between these two factors, which promotes teaching athletes the importance of having proper social support during rehabilitation to increase compliance.			
Isaac S. Beckler	Undergraduate Student	Kinesiology and Allied Health	Risk Factors for Concussion in Collegiate NCAA Division II Men's and Women's Soccer Athletes	Isaac S. Beckler
	Background: Certain risk factors may predispose athletes to an increased risk of concussion. Purpose: To identify risk factors for concussion among men's and women's college soccer athletes, and determine the likelihood of concussion based on those risk factors. Methods: A short electronic survey was sent out to NCAA Division II universities in Ohio. Survey questions included demographics, soccer-related questions, and concussion-related questions. Participants were women's and men's soccer athletes participating in either varsity or junior varsity soccer at their respective universities. Results: Of the concussions sustained while playing soccer, 29.4% of female participants sustaining a concussion compared to only 17.4% male participants. Concussions occurred during a competitive match in 8 of the 9 concussions compared to during a practice. There were 2.8 concussions per 100 years for strikers as well as midfielders, while no concussions occurred while playing defender. Varsity athletes showed a high incidence of concussions (33.3%) compared to JV/Reserve athletes in which there were no concussions while playing soccer ($p = 0.018$). Among players with a concussion history, 5 of the 12 (41.7%) sustained multiple concussions. The most common MOI was contact with another player's body (36.8%). Of the 40 respondents, there were only 3 players who wore mouth guards, and 1 who wore headgear. There was no significant difference between protective equipment worn and a diagnosis of concussion ($p = .157$) Conclusions: Being a varsity athlete, playing in a game, having a previous history of concussion, and playing as a striker or midfielder were all risk factors for concussion.			
Megan Anderson	Undergraduate Student	Kinesiology and Allied Health	Hydration and Fluid Replacement Knowledge in High School Football Athletes	Megan Anderson
	The primary purpose of this study was to investigate the knowledge of hydration and fluid replacement among high school football players. Secondary purposes of this investigation included identifying the athletes' current sources of nutrition information and to identify the players' perception of the adequacy of their fluid intake and barriers that prevent them from obtaining enough fluid before, during, and after exercise. A total of 29 athletes completed the survey. The mean ages of the athletes participated in this study was 16.4 years. The mean number of seasons played on the high school football team was 3.1 seasons. The mean score for the knowledge, true and false, portion of the survey was 16.2 out of 20. There were no significant correlations between any of the survey scores and other factors due to the small sample size. The athletes did well on the survey and appear to be very knowledgeable about general hydration information. Based on the results of this study, health care providers need to continue to educate athletes and monitor that they put their knowledge into good practice.			
Rachel Lamb	Undergraduate Student	Kinesiology and Allied Health	Chiropractic Physicians' Knowledge of Pediatric Concussions	Rachel Lamb
	Recent legislation in the state of Ohio now allows chiropractic physicians who possess certain credentials to both diagnose and clear young patients who have sustained concussions. Unfortunately, little if any existing research examines the knowledge and abilities of chiropractic physicians regarding the management of this condition. Therefore, the purpose of this study was to provide a general overview of chiropractic physicians' knowledge regarding the diagnosis and management of pediatric concussions. A survey was emailed to 1,344 chiropractors in the state of Ohio. Of those who were contacted, 71 completed the survey. The survey included questions regarding demographics, patient scenarios, and concussion management. Although 66.7% of chiropractors qualified to care for concussions reported the utilization of guidelines, the rate dropped to 35.2% when all respondents were included. There were statistically significant differences concerning familiarity with the Graded Symptom Checklist ($p=0.001$) and the Post-Concussion Symptom Scale ($p=0.007$). In addition, the results of a question regarding the implementation of graduated return-to-play protocols were found to be borderline significant ($p=0.06$).The results of the study indicated that chiropractors who possess the credentials required by law are more knowledgeable regarding concussion diagnosis and management than those who do not.			
Hannah Gualtieri	Undergraduate Student	Kinesiology and Allied Health	Nutritional Knowledge Among Athletic Teams	Hannah Gualtieri
	The topic of sports nutrition has often been undermined in the athletic world. Practicing good nutritional habits has the ability to both improve performance and health. Several studies have examined nutritional knowledge among athletic teams; however, very few have compared this knowledge among athletic teams. The purpose of this study was to determine the extent of various athletes' nutritional knowledge and evaluate the differences in this knowledge among NCAA Division II Athletic teams. A secondary purpose was to discover athlete's confidence level in their nutritional knowledge as well as gain their opinion on how they would improve nutritional knowledge among athletic teams. Very few differences were able to be found between genders and athletic teams regarding nutritional knowledge. Also athletes overall did not score very high on the nutritional knowledge assessment. Additionally several beneficial suggestions were given on improving nutritional knowledge which include providing classes and having athletic trainers and coaches increase nutritional awareness. More research still needs to be done on this topic. However, steps should also begin to be implemented to increase the nutritional knowledge deficit among athletic teams with hopes of improving performance and health care of collegiate athletes.			

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POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Matthew Kuo, Hannah I. Stedge, Michael S. Weller	Faculty, Undergraduate Student	Kinesiology and Allied Health	Factors Contributing to Professional Self-Efficacy Levels in Recently Graduated Certified Athletic Trainers	Matthew Kuo, Hannah I. Stedge, Michael S. Weller
	Self-efficacy is an important factor for job success, but it has been cited as a missing factor in new athletic training graduates. Therefore, the objective of this study was to find what factors affect the development of self-efficacy in the recently graduated certified athletic trainer. A qualitative survey method was utilized that involved questions aimed to extract as much personal opinion and experiences as possible. Online surveys were sent out electronically to 1,000 prospective participants. A total of 64 survey responses were received but only 52 surveys were qualified for inclusion into the study. Data was collected via the online survey service and analyzed through review, synthesis, and extraction of common themes. Several themes were extracted and considered as factors that affect self-efficacy development in the recently graduated certified athletic trainer. The results provide legitimate suggestions for how to increase self-confidence in the athletic training student.			
Daniel Herring, Kyle Cherry	Undergraduate Student	Kinesiology and Allied Health	Predictive Value of The Functional Movement Screen as it Relates to Anterior Cruciate Ligament Injury	Daniel Herring, Kyle Cherry
	Anterior cruciate ligament injuries occur over 200,000 times annually in the United States alone. This injury strains the healthcare system and affects the players, teams, parents, and the organization they are a part of. There have been, however, clinically researched risk factors that predispose athletes to ACL injury. As a result, there is a clinical need for an effective screening tool to identify those athletes at risk for ACL injury. The Functional Movement Screen has been shown to be an effective screening tool for detecting athletes who are at a greater risk for generalized injury, but its predictive value has never been tested for specific injury rates. Our prospective study of 20 freshman athletes on NCAA Division II varsity soccer, basketball, and volleyball teams. The results of the study to this point include one men's soccer athlete with an FMS score of 19 who suffered a torn ACL, leading us to believe that no correlation exists between FMS score and incidence of ACL injury at this time. The purpose of this study was to determine if FMS can be an effective tool for predicting risk of ACL injury in athletes.			
Carly R. Gregory	Undergraduate Student	Kinesiology and Allied Health	Effects of Antiepileptic Medications on Bone Density in Individuals with Intellectual and Developmental Disabilities	Carly R. Gregory
	Individuals with intellectual and developmental disabilities (IDD) are commonly prescribed antiepileptic drugs (AEDs) to manage seizures, manage behavior, and stabilize mood. Though research has been done on the effects of antiepileptic medications in patients with epilepsy, little study has been done on the persons with intellectual and developmental disabilities population. After surveying IDD patients with a history and current use of AEDs on osteoprotective behaviors, we were unable to use SPSS due to incomplete surveys and low sample sizes. However, we were still able to analyze for common themes, and we found that the most prevalent use of AEDs was for the management of epileptic seizures. We also found that the majority of participants completed weight bearing exercise, including walking, running, or weight lifting, more than three times per week and felt that they consumed a balanced diet. Vitamin D was the most commonly used supplement, and calcium was only used by four participants. Future research collection needs to have a larger sample size as well as more knowledgeable and thorough completion of surveys.			
Emily Sutter, Jenna Classen, Shannon Davis	Undergraduate Student	Nursing	The impact of an 8 hour versus 12 hour shift for registered nurses: An integrative review	Emily Sutter, Jenna Classen, Shannon Davis
	More hospitals are eliminating the traditional 8-hour shift and replacing it with the 12-hour shift. The aim of this study was to review literature about the effects of shift length on nurses and patients. Cedarville University's OneSearch was used to collect the 12 articles reviewed. Some studies indicated nurses working 12-hour shifts were at a greater risk of experiencing burnout compared to nurses working 8-hour shifts. Nurses working 12-hour shifts were more likely to experience chronic fatigue related to inadequate amounts of sleep. Furthermore, when a nurse's shift exceeded 13 hours, patients became more dissatisfied with their hospital care. Further research is still needed before a change in policy is recommended. Implications for the present include education and modification of the 12-hour shift to make it more manageable.			
Brittany Humphreys, Jennifer Stallard, Lydia Cook	Undergraduate Student	Nursing	The Effects of Faith-Based Therapy Versus Secular Therapy on Substance Abuse Treatment	Brittany Humphreys, Jennifer Stallard, Lydia Cook
	Substance abuse can affect anyone. The consequences are significant and may lead to death. Substance abuse also puts a great financial burden on the healthcare system. The purpose of this review of literature was to investigate the effect of faith-based therapy compared to secular therapy on substance abuse treatment. The data sources used were: PsychINFO, CINAHL, and OneSearch. Results showed multiple factors of faith-based therapy such as: cultural pressure, fear of judgment, and social support may correlate with recovery. A positive correlation was found between faith-based therapy and substance abuse recovery when compared with secular therapy (Al-Omari, Hamed, & Abu Tariah, 2015; Avants, Beitel, & Margolin, 2005; Bowen et al., 2006; Chu, Hung-En Sung, & Hsiao, 2012; Pardini, Plante, Sherman, & Stump, 2000; Sung & Chu, 2013). However, most research focuses more on the effectiveness of faith-based therapy than on the effectiveness of secular therapy.			

POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Kara Kistler, Melissa Soule	Undergraduate Student	Nursing	Preventing Pressure Ulcers in Adults: An Integrative Review	Kara Kistler, Melissa Soule
	Introduction and Background: Pressure ulcers (PUs) are a preventable health care concern which can impede the health quality and recovery for adult patients. Purpose: To determine if in the adult population, the use of alternative mattresses or standard mattresses reduces the risk of pressure ulcers more effectively. Framework: The Iowa Model of Evidence-Based Practice. Results: Of the 10 articles reviewed, 7 articles had significant focus on the comparison between alternative versus standard mattresses while 3 articles discussed alternative versus standard mattresses but concentrated on other interventions for PUs. Of the 7 focused on alternative versus standard mattresses, 5 have significant evidence to support utilizing alternative mattresses over standard mattresses, 1 article agreed but data was inconclusive, and 1 article concluded there was not significant data to support alternative over standard mattresses in preventing PUs. Of the 3 articles discussing alternative versus standard mattresses, 2 stated there was significant evidence while 1 article concluded no significant data. Conclusion: Based on current evidence, alternative mattresses are more effective than standard mattresses in preventing PUs. Further evidence-based research is suggested to confirm alternative mattresses are best equipped to prevent PUs in adult patients compared to standard mattresses.			
Micah F. Bernard	Graduate Student	Pharmacy	College Student FASDs Awareness and Attitudes	Micah F. Bernard
	Fetal alcohol spectrum disorders (FASDs) result from women drinking alcohol during pregnancy. This objective of this project is to assess college students' awareness of FASDs and determine if education improves self-reported attitudes toward drinking while pregnant or when pregnancy is possible. Previously conducted studies have equipped healthcare professionals to provide education to at-risk mothers and to intervene in pregnant mothers. However, little research has been done on informing those who are not yet pregnant but who may become pregnant about this disease and its prevention. This study will attempt to add to the literature on FASDs prevention by targeting college students, a population usually of child-bearing age which is associated with high rates of alcohol consumption. The researchers will contact professors of general education classes as well as leaders of campus organizations for permission to conduct research on students involved in these classes and organizations. Once research subjects have been identified and have given informed consent, the researchers will give a pre-test to the subjects to gather demographic information as well as baseline knowledge and attitudes. Then, a five-minute educational video will be shown to the participants which will explain the nature of FASDs and the consequences of drinking during pregnancy. Finally, a post-test will be administered immediately after the presentation to reassess knowledge and willingness to modify drinking habits. The researchers will run a Shapiro-Wilk test to evaluate the normality of the data. Parametric data will be analyzed by paired t-tests, while nonparametric data will be analyzed using Wilcoxon signed-rank. The researchers will determine how awareness and attitudes about FASDs and alcohol consumption change from the pre-test to the post-test, as well as examine how demographics information relates to attitudes and awareness.			
Nicholas Rudy, Aleda M.H. Chen, Chelsea R. Manion, Hannah Chittenden, David Fisher, Emily Bruce, Abigail Moon, Lia G. Hickinbotham, Eric Blizzard, Kristi L. Coe	Faculty, Graduate Student	Pharmacy	A Systematic Review of the Cost-Effectiveness of Chemotherapy Regimens	Nicholas Rudy, Aleda M.H. Chen, Chelsea R. Manion, Hannah Chittenden, David Fisher, Emily Bruce, Abigail Moon, Lia G. Hickinbotham, Eric Blizzard, Kristi L. Coe
	Background: The rising cost of chemotherapy dramatically increases the burden on healthcare and presents new challenges in achieving optimal patient outcomes. New treatments, in general, are more specialized but show minor progress in regards to efficacy. Accordingly, the threat of overpaying for chemotherapy regimens has increased. There is a need for a comprehensive review to compile relevant studies in order to inform clinician decisions on the basis of cost-effectiveness and quality of life. Objectives: The objective of this project is to assess the cost-effectiveness of anticancer medications with a special focus on the quality of life of patients undergoing chemotherapy, with the intent to form recommendations that unite evidence-based literature with clinical practice. The long-term goal is to create a clinical reference for prescribers to use in order to make more informed decisions on chemotherapy regimens. Methodology: In line with the objectives above, eligibility criteria were established to refine the database results. An initial literature search will be conducted to verify the appropriateness of the eligibility criteria and search terms. Upon finalizing study selection parameters, abstracts will be reviewed and full-text articles will be retrieved. Grey literature will be searched to eliminate publication bias. Hand searchers will be performed to ensure all studies in relevant journals will be retrieved. Selected articles will be reviewed and rated based on a modified GRADE approach. Analysis: Studies will be given a preference status based on their GRADE score. Final recommendations will be made at the professional judgements of the researchers based on pharmacoeconomic data extracted from studies weighted by preference status.			

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NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Laura Cummings, Ashley J. Smith, Michael D. Pelyhes, Zachary N. Jenkins, Phillip L. Thornton, Maurice Lee, William Matcham	Faculty, Graduate Student	Pharmacy	Evaluating Interprofessional Fast Forward Rounds for Transition of Care Education	Laura Cummings, Ashley J. Smith, Michael D. Pelyhes, Zachary N. Jenkins, Phillip L. Tornton, Maurice Lee, William Matcham
	Background: Interprofessional Education is gaining recognition by key pharmacy organizations for its value in healthcare education, producing various models for implementation among healthcare students and professionals. Unfolding cases incorporating transitions of care may improve student skills and attitudes toward interprofessional collaboration. Objectives: This project assessed the efficacy of unfolding cases in improving interprofessional skills and attitudes among pharmacy, nursing, and social work students. The ultimate goal is to integrate this model, if proven effective, into the curricula of multiple health science centers. Methodology: First, pharmacy, nursing, and social work students completed a pre-intervention survey regarding interprofessional skills and attitudes before discussing the first "fast-forward rounds" case in professional silos. After a transitions of care lecture, subjects completed the alternative cases in interprofessional groups in a crossover design. The comparable transitions of care cases included common health care topics that were challenging but within the scope of regular practice. "Fast forwards" between transitions of care required students to interpret changes in the case throughout the hospital stay. Following the interprofessional session, group debriefing allowed for feedback on cases, transitions, and differences working with and without other professions. Finally, a post-intervention survey was administered to measure changes in interprofessional attitudes and skills. Analysis: Kruskall-Wallis analysis identified differences among the three majors on the pretest and posttest separately. The Wilcoxon sign rank test assessed changes within each group since normal distribution was not assumed. A Chi-squared test analyzed demographic data. Results: Data analysis of results from the conference revealed a significant improvement in 15 of 25 survey questions in the composite group, while 14, 7, and 4 questions showed significant improvement in the pharmacy, nursing, and social work sub-analyses, respectively. Fewer questions showed significant improvement in the social work group, possibly due to the specific medical details of the cases as well as fewer social work participants relative to pharmacy and nursing. Discussion: Results suggest that this intervention can effectively improve student attitudes toward interprofessional collaboration and understanding of transitions of care. Changes can be made to improve the benefit to social work students and to increase the number of majors participating.			
Kasandra Chambers, Jon R. Austin	Faculty, Graduate Student	Pharmacy	Assessing medication redistribution practices between long-term care facilities, free clinics, and charitable pharmacies in Ohio	Kasandra Chambers, Jon R. Austin
	Every year, U.S. hospitals and long-term care facilities flush millions of unused medications down the drain, pumping contaminants into America's drinking water. These discarded medications could be expired, spoiled, or simply unused. Patients may leave behind unused medications if they refuse to take them, cannot tolerate them, or pass away. Few of our country's 5,700 hospitals and 45,000 long-term care homes keep data on the pharmaceutical waste they generate. Based on a small sample study, the Associated Press was able to project a national estimate of at least 250 million pounds of pharmaceuticals are wasted annually. Some nursing home facilities and state jails report throwing away anywhere from 700 to 1,000 pills a month, and up to 12,000 a year. This leads to an annual loss of $5 billion in wasted drugs. This is billions of dollars literally being flushed away. Medication redistribution is the solution to this problem. Many facilities are starting to participate in medication redistribution practices. The purpose of this study was to conduct market research on the current medication redistribution practices in Ohio. We surveyed both free clinics and charitable pharmacies as well as assisted living and long-term care facilities. The goal was to discover potential areas of improvement where we can be better stewards of our resources and decrease medication waste. References: Donn, J, Mendoza, M, Pritchard, J. AP IMPACT: Health care industry sends tons of drugs into nation's wastewater system. Associated Press Writers. 2014. SIRUM. www.SIRUM.org. Accessed March 2, 2015.			
Jeb Ballentine, Emily M. Laswell, Anna M. Smith, Jacques N. Allou, Jeniffer George, Jessica E. Amtower, Nicholas C. Daniels	Faculty, Graduate Student	Pharmacy	The Impact of Free Health Screenings at Community Pharmacies on Diabetes	Jeb Ballentine, Emily M. Laswell, Anna M. Smith, Jacques N. Allou, Jeniffer George, Jessica E. Amtower, Nicholas C. Daniels
	Diabetes is a prevalent issue in the United States, with an estimated 8.1 million people un-diagnosed as of 2012. Health screenings have been proven to identify diseases earlier, thereby resulting in earlier and more satisfactory treatment. Community pharmacies can offer many of the same screenings as those in doctor offices. The objective of this study was to assess the impact of free health screenings in community pharmacies on patient follow-up, perceptions, and knowledge of diabetes through blood glucose screenings and patient education. The study design was a pre-post observational study using surveys, blood sugar screenings, and patient education on diabetes. Participants were voluntary patients from four REM Corporation pharmacies in Ohio who were 18 or older, not recently tested for diabetes, non-diabetic, not pregnant, and without disorders that could hinder survey responses and education. Pre- and post-surveys assessed both patient perceptions on free health screenings in community pharmacies and on diabetes knowledge. Results among the 26 participants showed there was no statistically significant difference between patient perception pre- and post-surveys (all p-values ≥ 0.05), however there was a statistically significant difference between pre and post diabetes knowledge surveys ($p < 0.001$). Limitations of this study were the small sample size due to the relatively small pharmacies utilized and short length of study time. Future directions should focus on using more demographically diverse pharmacies and a longer study time. Due to patients already having highly positive perceptions of health screenings in community pharmacies, future research should assess patient knowledge of diseases and the impact of patient education on overall health outcomes. Results of the study showed patients had positive opinions on free health screenings in community pharmacies and these screenings can help patients understand disease states and be more aware of their health.			

POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Brittany M. Santee, Samson Amos, Denise S. Simpson, Trevor Stump, Lauren P. Williams, Chelsae Heinze, Rachel Kunze	Faculty, Graduate Student	Pharmacy	The Effects of Apigenin on Cell Proliferation and Apoptosis in Glioblastoma Multiforme	Brittany M. Santee, Samson Amos, Denise S. Simpson, Trevor Stump, Lauren P. Williams, Chelsae Heinze, Rachel Kunze
	Glioblastoma multiforme (GBM) is a WHO grade IV brain tumor. These tumors are highly proliferative, infiltrative, necrotic, angiogenic, and resistant to apoptosis. One major characteristic of GBM is the overexpression of epidermal growth factor receptor (EGFR), which leads to cell growth and proliferation when activated. GBM is very difficult to treat due to its location, heterogeneity, and invasiveness; an effective treatment is therefore needed. The use of flavonoids, which are natural compounds found in many fruits and vegetables, has been studied in the treatment of many different tumor types. Apigenin is a specific flavonoid that has previously been shown to have antitumor activity in a number of cancer cells. Our study set out to investigate the molecular effects of apigenin treatment on glioblastoma cell proliferation and viability using the trypan blue exclusion assay, MTT assay, and an LDH assay. In addition, Western blot analyses were utilized out to determine the signaling pathways through which apigenin treatment exerts its effects on cell proliferation and apoptosis. Finally, hoechst-propidium iodide staining and flow cytometry were used to examine the extent of apoptosis and the cell cycle context of these effects. Our results show that apigenin reduces cell viability and proliferation in a dose and time dependent manner while increasing cytotoxicity in GBM cells. Additionally, apigenin inhibits the EGFR mediated phosphorylation in the presence of EGF treatment of AKT, mTOR, and s6k resulting in decreased cell survival, growth and proliferation. It also inhibits the MAPK pathways in one cell line thereby reducing cell growth and proliferation. It also inhibits the anti-apoptotic effects of BCL-XL and increases PARP cleavage, which leads to increased apoptosis. Finally, apigenin induced cycle arrest at the G2M checkpoint, meaning that apoptosis primarily occurred at the DNA repair checkpoint in the cell cycle. In conclusion, apigenin has demonstrated some in vitro biological effects on glioblastoma cell lines that show promises in limiting the growth, proliferation and survival of these cell lines. Future research should look to identify means through which apigenin can be administered in clinically significant concentrations to the brain.			
MeiLing G. Norfolk, Rocco J. Rotello	Faculty, Undergraduate Student	Pharmacy	Validation of Humanized Monoclonal Mouse Antibodies	MeiLing G. Norfolk, Rocco J. Rotello
	Antibody therapy is being developed and tested as one of the most promising agents for treatment of various human diseases. As of March 2016, 350 antibody candidates are in clinical trials. Many of these antibodies have been taken from animals and "humanized" by genetic modification. Our experiment tests monoclonal antibodies that have been harvested from mouse hybridoma (spleen-derived) cells and cloned until the heavy and light chains of the antibody can be recognized by human cells. Because of this "humanization" procedure, basic antibody assays are needed to demonstrate that the binding, specificity and functional parameters of the antibodies are not lost during cloning. The purpose of this research is to perform this validation through assays. The antibodies are harvested from cell supernatants and purified using affinity chromatography. Then, the antibody fractions are tested for reactivity with human target protein PTP-Beta, via western blot and ELISA procedures. Cross-reactivity of the antibody is tested against human eta and cynomolgus beta proteins. The work presented in this Poster describes results from one particular mouse antibody, R15, which has been humanized to functionally enhance endothelial survival. The goal is to generate a therapeutic antibody candidate that improves endothelium survival and stability.			
Melissa J. Beck, Akwasi Appiah, Jasmine Gunti, Victoria Bumgardner, Caleb Tang	Graduate Student	Pharmacy	The Impact of a Flipped Classroom Compared to Lecture-Based Teaching on Achieving Course Outcomes	Melissa J. Beck, Akwasi Appiah, Jasmine Gunti, Victoria Bumgardner, Caleb Tang
	Education is one of the most vital components that compose a modern society and as such, its improvement and optimization is always sought. This study investigates the efficacy between two learning methods in a graduate level biochemistry course: complete active learning and a hybrid of active and passive learning. Active learning is one method of achieving course outcomes with an emphasis on student responsibility through self-studying of course material followed by classroom discussion. In comparison, passive learning emphasizes instructor responsibility through didactic lecturing of course material. The aftermath results following a hybrid form of active and passive learning (in-class didactic lecture and team-based learning) versus complete active learning (self-studying course material before class, classroom discussion, and team-based learning) will be compared among four cohorts of biochemistry students. A survey will be sent out seeking to gather qualitative and quantitative data that may later contribute to the confounding of main objective results. Descriptive statistics analyses will sort, organize, and filter survey responses in order to examine whether or not differences there affected the objective. Main objective results will rely on exam and readiness assessment test (RAT) scores from all four cohorts of students. Various biochemistry topics will be compared per these scores. An independent t-test, one-way ANOVA, two-way ANOVA, and ANCOVA test will be used to assess all the data. Within some of these statistical tests, survey responses will be accounted, assessed, and controlled so as not to convolute findings. These factors include: continuous independent variables (Example: age), nominal variables (Example: undergraduate status), and covariates (Example: GPA). The hypothesis of this study is that there will be a statistically significant difference between the cohorts that use a hybrid of active and passive learning and the cohorts that use complete active learning.			

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POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Samuel Franklin, Elizabeth Aziz, Ankit Pandav, Abigail Savino, Caleb Thompson, Caleb VanDyke, Ruth Choi, Elisha R. Injeti	Faculty, Graduate Student	Pharmacy	Herb-drug interaction of andrographolide on the pharmacokinetics of carbamazepine in rats	Samuel Franklin, Elizabeth Aziz, Ankit Pandav, Abigail Savino, Caleb Thompson, Caleb VanDyke, Ruth Choi, Elisha R. Injeti
	Objective: To determine if andrographolide (AND) impacts the pharmacokinetics of carbamazepine (CBZ). Background: CBZ is an anticonvulsant medication that is metabolized in the liver by cytochrome P450 (CYP) enzymes. AND is an over-the-counter medication that is common in Eastern cultures to treat inflammation and is a CYP enzyme inhibitor. Because CBZ is metabolized in the liver by these specific CYP enzymes, coadministration of andrographolide and CBZ could result in a herb-drug interaction. Methods: Sprague-Dawley rats (N=12) aged between 3 months and 6 months (250-350 g) will be split into control (N=6) and treatment (N=6) groups. The treatment group will receive an AND injection (dissolved in dimethyl sulfoxide to 10 mg/mL) intraperitoneally for seven consecutive days. On the eighth day, another AND injection will be administered intraperitoneally as well as an injection of CBZ (CBZ powder prepared into a 20 mg/mL emulsion) administered via intravenous route. Plasma samples will be collected every 20 minutes for 4 hours and stored at -20 Analysis: HPLC analysis will yield a time vs. plasma concentration graph that will allow us to calculate the rate of elimination (K). The mean K value will be determined for both the control and treatment group. The mean K value of 6 rats in the treatment group will be compared to the mean value of K of the 6 rats in the control group. These will be analyzed using SPSS and utilizing an unpaired t-test, with a $p<0.05$ deemed statistically significant."
Denise S. Simpson, Marshall C. Johnson, David T. Bancroft, Robert L. Paris	Faculty, Undergraduate Student	Pharmacy	Investigation of the effects of growth environment on the ferric reducing antioxidant power of selected plant species	Denise S. Simpson, Marshall C. Johnson, David T. Bancroft, Robert L. Paris
	Metabolism within the human body creates multiple oxidant byproducts. These oxidants may cause cell injury, damage to DNA, and other complications leading to the development of chronic disease. Antioxidants are important dietary components which defend against oxidative damage by scavenging the oxidant by-products. Research has shown that diets rich in antioxidants offer protection against various chronic diseases. The goal of this research is to determine the effects of varying growing conditions on the production of antioxidants, and to ultimately find the best possible plant-growth environment for maximum production of antioxidants. Each plant was grown under three different environmental conditions; positive, negative, and control treatment. The positive treatment consisted of supplying water to field capacity with fertilizer, the negative treatment consisted supplying half of the water required to reach field capacity with no fertilizer, and the control treatment consisted of supplying water to field capacity with no fertilizer. Ferric reducing antioxidant levels were then determined. The ferric reducing antioxidant power evaluates antioxidant potential by reducing ferric iron ($Fe3+$) to its ferrous form ($Fe2+$). Addition of excess ferric ions result in the development of a Prussian blue color. The ferric reducing antioxidant power of the extracts was measured by reading the absorbance at 750 nm using a spectrophotometer. The ferric reducing antioxidant power assay was performed on extracts of red clover (Trifolium pratense), Amur honeysuckle (Lonicera maackii) and wild garlic (Allium vineale). The differing growing conditions resulted in variation in the production of antioxidants by the plants. The data obtained revealed that the plants grown under the negative treatment produced a significantly lower level of antioxidants when compared to the plants grown under the positive treatment. These results indicate that growing conditions can influence antioxidant production in plants.
Trevor Stump, McKenzie Shenk, Karissa C. Chow, Becky Brown	Graduate Student, Undergraduate Student	Pharmacy	Effects of High-Fidelity Simulation on Student Perceptions of Interprofessional Education	Trevor Stump, McKenzie Shenk, Karissa C. Chow, Becky Brown
	Background: Interprofessional education is gaining momentum in healthcare education through the accreditation standards for various health professions and requirements from government initiatives like the Affordable Care Act. The role of high-fidelity simulation in health care education is growing and serves as a mechanism to implement interprofessional education. Purpose: Assess the change in healthcare students' perceptions of interprofessional education following a high-fidelity emergency medicine simulation. Methods: Students from a medical, nursing, and pharmacy school participated in a high fidelity simulation event. There was first a brief presentation on interdisciplinary teamwork. The Student Perceptions of Interprofessional Clinical Education-Revised 2 (SPICE-R 2) was administered before and after a series of high fidelity simulation cases. A t-test used to compare changes in three factors from pre- to post-test. Results: There were statistically significant differences for the three factors in the pre- and post-test surveys -- interprofessional teamwork and team-based practice ($p = 0.004$), roles and responsibilities for collaborative practice ($p = 0.001$), and patient outcomes from collaborative practice ($p = 0.009$). Post-hoc analysis using ANOVA did not show any significant differences between demographic groups with respect to school, year, and involvement in prior IPE events. Discussion: High-fidelity simulation improved student perceptions of interdisciplinary education in three factors. The interdisciplinary simulation experience highlighted the value of working in interprofessional teams and reinforced the role each profession plays in coordinated patient care. Additionally, students improved their perception of the ability of health care teams to deliver positive patient outcomes. Conclusion: High-fidelity simulation provides an eff means to improve student perceptions of interprofessional education across health care disciplines.
Nicole M. Tiffan, Ruth L. Markham, Lauren A. Kuhlwein, Heidi M. Gibbs	Faculty, Undergraduate Student	Psychology	The Personal Effects and Experiences of Being a Full-Time Firefighter: A Qualitative Study	Nicole M. Tiffan, Ruth L. Markham, Lauren A. Kuhlwein, Heidi M. Gibbs
	Firefighters are exposed to stress both physically and psychologically on a nearly daily basis, which can have a profound effect on their physical and emotional well-being. In the present qualitative study we explore the effects of being a full-time firefighter on both personal and professional aspects of life. Full-time firefighters from departments around the southwest Ohio region are being interviewed using a semi-structured format. Those interviews are recorded and transcribed for the purpose of analysis, as we look for common themes among these professionals. Our questions specifically focus on the experiences a firefighter has had while being on call, expectations and motivations when first beginning their career, stressors and coping within the job itself, and how their career choice has affected their familial relationships, health habits, hobbies, and personality. Emerging themes include issues regarding sleep, risk-taking behaviors and habits, and the motivation of helping others.

POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Michael W. Firmin, Taylor E. Hobbs, Aubrey Gillette, Hannah Foster	Faculty, Undergraduate Student	Psychology	A Qualitative Assessment of Military Kids	Michael W. Firmin, Taylor E. Hobbs, Aubrey Gillette, Hannah Foster
	In the present study, we addressed the following research question: Do college-aged military kids report similar patterns in affect, behavior, and cognition due to shared perceptions and experiences? The study was conducted through semi-structured qualitative research interviews on a selective, Midwest, private college campus. Participants were asked questions regarding their upbringing as a military child and were asked to identify any potential connections between their past experiences and their current beliefs and behaviors. We report qualitative findings relating to themes in the areas of family dynamics, adaptability, and lifestyles.			
Michael W. Firmin, Aubrey Gillette, Taylor E. Hobbs	Faculty, Undergraduate Student	Psychology	Effects of Olfactory Sense on Chocolate Craving	Michael W. Firmin, Aubrey Gillette, Taylor E. Hobbs
	Chocolate has been referred to as one of the most socially acceptable addictions. It is one of America's most craved foods, and women tend to crave it more frequently than men. Kemps and Tiggemann (2013) conducted an innovative experiment to reconcile the ideas of mental imagery, scent, and craving. After presenting images of sweet foods and having female undergraduate students smell a neutral scent, the researchers found that the neutral smell decreased craving for sweet foods. In the present study, researchers sought to replicate many aspects of Kemps and Tiggemann's design. This new study went one step further, though: in addition to anticipating that a neutral or fresh scent would reduce one's craving level, there was also an anticipation that smelling a sweet scent would increase craving levels. To test the research hypothesis, female undergraduate students received three smell conditions (no scent, fresh scent, and sweet scent) in the experiment. The order of the three conditions was counterbalanced. In all conditions, the students were shown a series of 12 images of chocolate food (cakes, muffins, ice cream, and brownies) on a large projector screen. Each image appeared for five seconds and was followed by an eight second retention period, during which participants were instructed to smell one of the essential oils. The students inhaled Slique essential oil in the fresh scent condition, inhaled vanilla essential oil in the sweet scent condition, and inhaled no essential oil in the control condition. After inhaling the scent, the students were asked to rate their craving level for the food just presented in the image on a 100 mm visual analogue scale. An analysis based on the 93 participants' craving responses revealed a significant effect of the olfactory conditions, ($F=73.813$, $p<.001$). That is, the students' level of craving for chocolate food was higher in the sweet scent condition ($M=59.31$, $SD=4.85$), but lower in the fresh scent condition ($M=34.65$, $SD=4.79$), compared to the control condition ($M=46.97$, $SD=6.67$). These findings are important for a variety of populations including practitioners, nutritionists, and individuals seeking to curb their cravings or lose weight.			
Dan J. Case, Charles D. Dolph, Devin M. Welsh	Undergraduate Student	Psychology	The Motivation to "Like": Do "likes" Cause Conformity on Social Media?	Dan J. Case, Charles D. Dolph, Devin M. Welsh
	Social media has become the norm in westernized culture in many households. Many companies ranging from small to large organizations have employed multiple forms of social media in order to promote their business. Some companies are inclined to buy "likes" from other businesses in order that their product may seem more appealing to viewers online. The question that this study aimed to address whether participants were more likely to "like" a picture if the picture has more associated "likes", rather than if it is a good picture as deemed by a professional photographer. This would follow the traditional conformity principles, but applied to the 21st century media. In this study, 628 participants were surveyed from Cedarville University via an online survey that was sent out over email. In the survey, participants were shown 12 pairs of the photos and asked to choose which one that they would "like." The photos of the same item were paired together of high and low quality, and larger and smaller number of "likes" were associated. Those photos included water bottle, laptop, Bluetooth speakers, and backpack. The high and low quality of the photos were determined based on the evaluation of a professional photographer and group of 35 students. The small number of "likes" was chosen at random and the larger number was calculated at a 150% increase. The number of participants' "likes" were tallied for each photo. Chi-square goodness of fit tests were calculated comparing the frequency of "likes" of each photo in each pair of the photos. Contrary to the prediction, the preliminary data analysis indicated that participants were significantly more to like the higher than lower quality photos regardless of the number of "likes" associated. But they were not significantly more to "like" either of the photos in a pair when the quality of both photos were the same. In conclusion, the present study provide evidence that participants were more interested in the quality of a photo rather than the associated number of "likes" when they chose their preferred pictures. Limitations and implication of the current study would be discussed."			

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NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Michael W. Firmin, Kristin DeWitt, Lauren A. Kuhlwein, Taylor E. Hobbs, Aubrey Gillette	Undergraduate Student	Psychology	Relationships and Client Protection Differences in the APA and ACA Ethical Codes	Michael W. Firmin, Kristin DeWitt, Lauren A. Kuhlwein, Taylor E. Hobbs, Aubrey Gillette
	We present the results of a line-by-line comparison regarding relationship and client protection issues between the American Psychological Association (APA) and American Counseling Association (ACA) ethical codes. Out of 144 total differences in these ethical codes, 34 differences pertain specifically to the topics of relationships and client protection. Results from the study showed ACA to provide extensive requirements and prohibitions relating to the therapeutic relationship, compared to APA's more general and principle-driven approach to this domain. Citing a few examples here, we note that ACA requires more extensive documentation of relationship boundary changes pertaining to romantic and/or sexual relationships, therapeutic role changes, and other redefinitions of relationships. Additionally, ACA and APA both limit the potential for multiple relationships, but ACA specifically prohibits counselors from terminating a therapeutic relationship in order to pursue a romantic relationship with someone closely related to their client. In sum regarding this domain, the ACA is more definitive, prescriptive, and limiting in what appears to be attempts at providing strengthened client protection. Similarly, the ACA is more detailed and narrow regarding client/counselor relationships and other therapeutic boundary establishments. The protections also are more fully extended to the counseling supervisor/supervisee relationship in the ACA code. In contrast, the APA is more general and/or silent in the domains which are spelled-out in detail by ACA. In the present study, we draw attention to the specific wording in the two documents and how these differences in words potentially impact clinical practice with both clients and supervisees. We also discuss how the results of the present study have implications for undergraduate students who are at the point of decision-making regarding which profession to select. Additionally, any psychologist who supervises counselors must ensure that all ethical standards—of both psychology and counseling—are upheld when counselors work under the licenses of a practicing psychologist. And finally, agencies who hire both licensed psychologist and licensed counselors must be aware of these significant differences in the APA and ACA ethical codes. We place the results of the present study into the larger context of the overall differences between the two codes.			
Taryn Viers, Ashley Laird, Ashley Dibert, Ruth Markham	Faculty, Undergraduate Student	Psychology	Reverse Freshman Fifteen	Taryn Viers, Ashley Laird, Ashley Dibert, Ruth Markham
	Objective: The goal of this study was to identify factors that influence female college students to make positive changes concerning their health and weight. Participants: About 24 female sophomore, junior, and senior college students. Methods: Individual semi-structured interviews were conducted. The interviews contained questions concerning how each factor such as identity, motivation, habits, availability of resources, and priorities affected their conscious choice to pursue a healthier lifestyle. Data was analyzed using methods of qualitative analysis. Results: We expect to find themes that demonstrate how social pressures, family dynamics, availability of resources, and time management affect these student's health conscious choices.			
Ashley Dibert, Ashley Laird, Di Wu	Faculty, Undergraduate Student	Psychology	The Effects of Style on First Impressions	Ashley Dibert, Ashley Laird, Di Wu
	Many factors influence our first impression. Previous research found that clothes may affect people's perceptions and attitudes toward others. Even subtle changes in the style of dress would affect others' perceptions on multiple characters such as success, trustworthiness and reliability (Howlett, Pine, & Orakcioglu, 2013). It has also been found that the amount of similarities between raters and the individuals rated were positively correlated with the rating scores of favorable characteristics (Michinov & Michinov, 2011). The current research aimed to investigate how a person's own style of dress would influence their perception on attraction based on those individuals' style of dress. It was predicted that individuals would perceive others with the same style of dress as more attractive than those in different style of dress. To test this, an online survey was sent to undergraduate students in Cedarville University via a campus-wide email. 552 participants were randomly shown six pictures of a male and a female model wearing one of three styles of dress, including hipster, classy, or athletic. The faces of the model were blurred. Participants were then asked to evaluate models' characteristics on a 7-point Likert scale based on the statements, such as "This person is attractive." One is strongly disagree and seven is strongly agree. At end of the survey, the participants were also asked to report their own daily style of dress. Factorial ANOVA Analyses were conducted to compare the differences of the rating scores on the male and female models in three different style of dress. There were significant interactions between participants' own style of dress and the model's dress. The preliminary results indicated that participants tended to view the models wearing the same style of dress as more attractive than those in different styles of dress. Overall, the current study provided new evidence that a person's own style of dress might impact their perception of others' attraction as related to dress style. Individuals tended to view others with the same style of dress as more attractive.			

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NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Gabrielle E. Metzler, Chi-en Hwang, Elizabeth Stokes	Faculty, Undergraduate Student	Psychology	The Relationship Between Music Preference, Moral Competence, and Spiritual Well-being in Christian College Students	Gabrielle E. Metzler, Chi-en Hwang, Elizabeth Stokes
	In this survey study, we examined the effect of Christian music with lyrics versus secular music with lyrics (written as "Christian music" and "secular music") on the moral competence and spiritual well-being of college students. These students were taken from the population of Cedarville University and were aged 18-25. We hypothesized that Christians who listen to mostly Christian music have higher moral competence and spiritual well-being than those who listen to primarily secular music. Tested through an online survey using the Moral Competence Test (MCT) and the Spiritual Well-Being Scale (SWB), this study found no gender differences, therefore the subsequent analyses combined both genders. A Pearson Correlation test revealed significant positive correlations between the percentage of time participants listened to Christian music, religious well-being, and existential well-being ($p < 0.05$). However, the correlation between percentage of time spent listening to Christian music and the moral competence score was negative ($p < 0.05$). The two groups were defined as those who reported listening to Christian music 50% of the time or less ("less" group), and those who reported listening to Christian music 60% or more ("more" group). An independent-samples t-test showed a significant difference between the religious well-being of the two groups, $t(306) = -3.265$, $p = 0.001$ (less group n=199, M=51.75, SD=8.42; more group n=109, M=54.42, SD=5.86). A significant difference was found between the existential well-being of the groups, $t(304) = -2.641$, $p = 0.009$ (less group n=202, M=46.47, SD=7.21; more group n=104, M=48.63, SD=6.56). There was no significant difference on the two groups' moral competence. Overall the results indicated that students at Cedarville University who listened to secular music and who listened to Christian music were significantly different on their spiritual well-being and moral competence. Students who listened to Christian music have higher spiritual well-being scores than those who listened to secular music, but both group were in an average range for spiritual well-being. Both groups scored exceptionally high on their moral competence.			
Ruth L. Markham, K.C. Pugh, Valerie A. Sohn, Emily N. Gentry	Faculty, Undergraduate Student	Psychology	Perspectives on Adoption from Christian Adoptive Parents: A Qualitative Study	Ruth L. Markham, K.C. Pugh, Valerie A. Sohn, Emily N. Gentry
	Although adoption has long been studied, the rising current evangelical trend of adopting has brought about a new series of questions, mostly pertaining to, "What is it like to be a Christian adoptive parent?" This qualitative research study was conducted through semi-structured interviews with practicing Christians who have both biological and adopted children. The research goals were to understand how faith motivates one's decision to adopt and the assimilation of the adopted child into the family, to examine the parallels between theological adoption and human adoption, and to see if parents have a qualitatively different kind of bonding or affection for their biological and adoptive children. We anticipate finding several major themes from these qualitative interviews, some of which pertain to: the biblical mandate for orphan care, a deep understanding of theological adoption, differences in initial bonding with adopted child, and the importance of names.			
Ying-Ruey Chuang	Undergraduate Student	Psychology	Differences in Perceptions Between College Students and Professors	Ying-Ruey Chuang
	The current research aimed to examine whether students and professors who cheated in the past would differ from those who did not cheat on their perceptions on the severity, percentage, and impact of cheating behavior. Data were collected from 434 students (61% female, 39% male, mean age: 19.78) and 42 professors (57% female, 43% male, mean years of experience: 17.29) through an on-line survey in a private Christian university. The current study focused on the severity, the impact, self-report, and the perceived percentage of cheating behavior in the survey. Furthermore, questions on the severity of cheating were categorized into three types of behaviors: cheating related to exam or plagiarism, related to homework, and ambiguous behavior). Results showed that the same percentage (38%) of students and professors self-reported cheating in the past and also indicated that overall students and professors differed on their perceptions on the severity, percentage, and impact. Two ANOVA analyses were conducted on severity and percentage of cheating. A three-way ANOVA with participant role and past cheating behavior as between-subjects factors and types of cheating behavior as a within subject factor examined the difference on severity. No significant interactions and main effect of past cheating behavior were found. However, students (M =3.69, sd= .03) and professors (M =4.17, sd= .09) were found to have significant different views on the severity of cheating behavior, $F(1,476) = 24.18$, $p = .000$. A two-way ANOVA with participant role and past cheating behavior as between-subjects factors examined the differences on the perceived percentage of cheating behavior. A significant interaction ($F(1,469) = 6.45$, $p = .011$), and two main effects of the participant role ($F(1,469) = 24.78$, $p = .000$) and past cheating behavior were significant ($F(1,469) = 4.06$, $p = .045$). Post hoc t-tests indicated that students with cheating estimated higher percentage of cheating in general (M = 56.98, sd = 25.17) than students without cheating (M= 39.75, sd= 21.23), $t(429) = 7.61$, $p = .000$. , but no significant differences were found between professors with (M = 28.53, sd = 18.06) and without cheating (M = 30.52, sd = 18.62).			
Kari E. Barnhill, Hannah Foster, Michael W. Firmin, Deborah Lawrence, Ying-Ruey Chuang	Faculty, Undergraduate Student	Psychology	The Social Psychology of Public Defenders	Kari E. Barnhill, Hannah Foster, Michael W. Firmin, Deborah Lawrence, Ying-Ruey Chuang
	The right to an attorney is a one to which all U.S. citizens are entitled, in conjunction with the constitution's sixth amendment. Difficulty arose when people who were unable to provide necessary funds to hire a lawyer and, subsequently, went into trial pro se. Resolution was met with the creation of the public defense system -- a system which is unfortunately understudied, and sometimes regarded in a negative light, including a negative perception that public defense is a broken system. This belief sometimes bleeds into the minds of potential clients who may believe a public defender is not sufficiently competent to represent them. The present qualitative research study reports the perspectives of public defenders, from their own vantage points and perspectives. We interviewed 22 public defenders (Male = 13, Female = 9) from three counties in Southwest Ohio. The public defenders reflected on their respective viewpoints, from when they first started in this career path, with their current perspectives. In our initial findings, motivations for becoming a public defender seem to fall under one of three categories: a desire for justice and a strong belief in the Constitution, a desire to help people who are less fortunate, or a desire for a steady paycheck. While many positives came forth through in the interviews, struggles of the career of a public defender also seemed to appear. These include low pay and a small budget for cases, a lack of time for each case because of a heavy caseload, and the perception of incompetence and indifference that their clients come in with.			

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NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
John W. Behnke, David Dombrowski, Bryce C. MacTurk, Matthew S. Merical, Kenneth W. Ward, Daniel J. Stank, Heather G. Kuruvilla	Faculty, Undergraduate Student	Science and Mathematics	A Netrin-3 Like Protein is Secreted from Tetrahymena thermophila	John W. Behnke, David Dombrowski, Bryce C. MacTurk, Matthew S. Merical, Kenneth W. Ward, Daniel J. Stank, Heather G. Kuruvilla
	Netrin proteins are a family of laminin-related secreted proteins that provide signals for axonal growth and cell migration during vertebrate development. Netrin homologs are expressed throughout the animal kingdom; however, some animals do not express a homolog of any known netrin receptors. We have previously found that the ciliated protozoan, Tetrahymena thermophila, responds to netrin-1 peptide by showing avoidance behavior. In addition, Tetrahymena secrete a protein that is immunologically similar to netrin-1 as detected by ELISA. Since netrin-3, like netrin-1, is a guidance molecule for axons and overlaps signaling pathways with netrin-1 in vertebrates, we hypothesized that netrin-3 may also act as a chemorepellent in Tetrahymena. While behavioral assays did not confirm this hypothesis, growth assays indicate that netrin-3 peptide inhibits cell division in Tetrahymena. In addition, ELISA and Western blots indicate that a netrin-3 like protein of approximately 48 kDa is secreted from Tetrahymena. Immunolocalization of this protein within the cell shows that it appears in widely distributed throughout the cell, and co-localizes with the netrin-1 like protein. Using ER tracker™, we found that some of the netrin-3-like protein co-localizes with the endoplasmic reticulum, as might be expected for a secreted protein. Further experimentation is necessary to determine the mechanism by which netrin-3 peptide inhibits growth in Tetrahymena.			
Matthew S. Merical, Heather G. Kuruvilla	Faculty, Undergraduate Student	Science and Mathematics	Further Biochemical Evidence for Secretion of a Netrin-1 Like Protein from Tetrahymena thermophila	Matthew S. Merical, Heather G. Kuruvilla
	Netrin-1 is a pleiotropic signaling molecule first characterized in its role as an axonal guidance molecule. Since then, additional physiological roles for netrin-1 have been found, implicating netrin signaling in processes such as angiogenesis and tumor progression. Netrins are expressed throughout the animal kingdom. We have previously found that Tetrahymena thermophila show avoidance to netrin-1 peptide, and that secreted proteins from Tetrahymena show evidence of netrin-1 activity when assayed by ELISA. In our current study, Western blotting using a polyclonal antibody against netrin-1 showed that a protein of approximately 52 kDa was present in both whole cell extract and secreted protein obtained from Tetrahymena thermophila. Ion exchange chromatography using CM-Sepharose allowed us to isolate a protein of the same molecular weight, suggesting that this netrin-1-like protein is a basic protein, similar to its mammalian homologue. Immunolocalization using the same antibody showed co-localization of the netrin-1 with the endoplasmic reticulum when counterstained with ER Tracker™, as would be expected for a secreted protein. Since the Tetrahymena genome has been sequenced, we hope to purify enough of this protein to obtain an amino acid sequence and confirm the identity of this protein.			
Christian Hayes	Faculty	Science and Mathematics	Does recreational diving alter hawksbill sea turtle foraging behavior? Results from a marine protected area, Honduras	Christian Hayes
	Recent studies indicate that recreational diving may cause unintended behavioral changes in marine macrofauna. The hawksbill sea turtle (Eretmochelys imbricata) is a critically endangered species encountered by recreational divers in marine protected areas (MPAs) circumtropically. Few studies, however, have examined the impacts of recreational diving on sea turtle behavior. We conducted in-water observations of 61 juvenile hawksbill turtles from June 12 to September 2, 2014 in the Roatán Marine Park (RMP), Roatán, Honduras, to quantify the impacts of recreational diving on hawksbill behavior. We recorded turtle behaviors and the number of behavior bouts to test the effects of diver approach on sea turtle behavior. As a control for diver interactions, we began all observations by recording turtle behavior for approximately 3–5 m, and to test if diver approach affected a change in turtle behavior, we instructed different sized groups of divers (1-4) to slowly approach each turtle. We used the Interactive Individual Identification System (I3S): Pattern (Version 4.0.1) to test for repeat individuals. To test for associations between behavior bouts and behavior time we ran Spearman's correlations. We also ran repeated measures ANCOVAs, comparing the total time turtles engaged in each behavior before and after divers approached turtles. Our results indicate that the amount of time turtles engage in eating, investigating, and breathing activity was correlated with the number of behavior bouts of each behavior. We also found that the amount of time turtles spent eating, investigating, and breathing decreased when approached by divers. Our results suggest diver habituation may negatively impact sea turtle behaviors, however it is unknown if recreational diving has a cumulative effect on turtle behavior over time. We recommend that MPA managers should implement monitoring programs that assess the impacts of tourism on sea turtles. We have established monitoring of hawksbills as representative species of marine habitats, which have the potential to be heavily impacted by dive tourism, and provide recommendations for continued monitoring of the resource.			
Sean B. O'Donnell	Undergraduate Student	Science and Mathematics	The Petrology and Geochemistry of the Independence Dike Swarm, Owen's Valley, California	Sean B. O'Donnell
	Petrologic studies are important because they provide insights into the conditions under which rocks form. The Late Jurassic Independence Dike Swarm is a series of vertical igneous dikes that crop out in eastern and southern California, and range from mafic to felsic in composition. In order to examine their petrology and geochemistry, surface samples were collected from four different dike outcrops within Owen's Valley, CA. The samples were examined through thin-section analysis under a petrographic microscope, X-ray diffraction analysis, and X-ray fluorescence analysis. Mineral composition, mineral size, major, trace, and rare earth element concentrations were collected from these analyses. Results from all samples were compared. Petrologically, the dikes range in classification from gabbro to diorite to granite, with the more gabbroic and dioritic dikes having larger concentrations of plagioclase. The more granitic dikes have larger concentrations of quartz and potassium feldspars. There is considerable mineral alteration, especially among the feldspars, with some of the samples having been almost completely altered into clay minerals. The presence of epidosite within a dike suggests the source magma incorporated country rock on the way toward the surface. Geochemical analysis shows chemical variability among the dikes and possible source magma differentiation within the Owen's Valley area.			

POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
John H. Whitmore	Faculty	Science and Mathematics	Preliminary Correlation and Isopach Map of Pennsylvanian and Permian Sandstones of the Western United States	John H. Whitmore
	Using the COSUNA data compiled by the AAPG in the 1970s and 1980s, Permian and Pennsylvanian sandstones were correlated across western North America. Stratigraphic sections and thickness information were obtained from charts and spreadsheets available from that data set. An isopach map was constructed from the thickness data of sandstones usually found below a Guadalupian Limestone. In particular, this project was concerned with sandstones that could be lithostratigraphically correlated with the Leonardian Coconino Sandstone of the Grand Canyon region of northern Arizona. These sandstones are mostly Lower Permian (Leonardian and Wolfcampian) but some are Upper Pennsylvanian, especially in the northern part of the outcrop area. It was found the sandstones are often located directly below a chemically rich unit (phosphorite, gypsum or anhydrite) or a limestone. Additionally, many of the sandstones have limestones at their lower contacts as well. It was found the lithostratigraphic equivalent of the Coconino could be correlated as a single diachronous unit from southern California to North Dakota, and from Texas to Idaho, an approximate area of 2.4 million km2. Examples include the Coconino Sandstone (Arizona), the Glorieta Sandstone (New Mexico, Texas, Oklahoma), the Lyons Sandstone (Colorado), the Wood River Formation (Idaho), the Weber Formation (Utah), the Tensleep Sandstone (Wyoming), the Minnelusa Formation (Montana, South Dakota) and the Broom Creek Formation (North Dakota). For most of the outcrop area the sandstones were less than 200 m thick, but very thick sections (some approaching 3,000 m) were found in parts of Utah and Idaho. These findings are significant because the Coconino Sandstone and many of its equivalents are usually interpreted as a fossilized desert sand dune deposits. However correlation of the lithostratigraphic equivalents of these sandstones, their thicknesses, their continuous lateral extents and the clear marine nature of many of the sandstones makes this interpretation highly unlikely. The Permian and Pennsylvanian sandstones of the western United States are just one of many examples of thin widespread deposits that are common throughout the geological record and are consistent with the types of deposits that we would expect to be formed during Noah's Flood.			
Joshua W. Perez	Undergraduate Student	Science and Mathematics	Correlation of Basal Cambrian Sandstones across North America	Joshua W. Perez
	A thin, widespread sequence of siliciclastic strata ranging from lower to upper Cambrian age overlies Precambrian crystalline and metamorphic basement rock bounded by the Great Unconformity. This sequence is mainly comprised of basal Cambrian sandstones which can be subdivided into three distinct suites of lithofacies transitioning in age across most of North America. From the west, which is most notable for the Tapeats sandstone of Arizona and Nevada, lies gravelly to boulder sized conglomerates directly overlying basement rock. Eastward, the lower to middle Cambrian consists of a variety of ledge-forming sandstones which contain various areas rich in cross bedded, as well as planar laminated or tabular formations. Further east the upper Cambrian contains a layer dominated by interbedded sandstones and shales. This three-part transitional sequence from lower to upper Cambrian age is well documented as part of the first great marine transgression of North America; however, correlation studies in order to trace the transgression's full geographical extent are sparse. Here, stratigraphic correlation charts from across North America are studied in order to more precisely match equivalent basal sandstones across the continent. Stratigraphic sections are studied, sketched, and correlated lithostratigraphically. Correlated units are then plotted into isopach maps in order to establish thickness change throughout the transgressive sequence. From these studies, it is apparent this Cambrian transgression may not be limited to the geographical extent of North America, but was likely a worldwide transgression as result of eustatic sea-level rise. This is consistent with chapters six through nine of Genesis in the Old Testament, which describes the events of a worldwide catastrophic flood, which would be well marked in geologic history by a worldwide marine transgression spanning most of the earth.			
Calvin J. Anderson	Undergraduate Student	Science and Mathematics	Growth of Synthetic Silver Wires from Natural Acanthite	Calvin J. Anderson
	Wire silver is an unusual crystal habit of native silver which is intimately associated with acanthite (Ag2S). These delicate wires have been collected for several centuries, but much remains unknown regarding their growth mechanism and crystal structure. This study has successfully produced synthetic silver wires from natural acanthite in order to investigate the nature of their crystallinity. Chunks of crude acanthite crystals from the Hongda mine, Shanxi Province, China, were trimmed into roughly 1 cm chunks for growth experiments. Preexisting silver wires, which appeared to be natural, were avoided. Several techniques were explored with varying degrees of success. Attempts using a benchtop furnace failed to produce any wires. However, a silver film, which formed on the acanthite surface, confirmed that decomposition of the sulfide indeed occurs in excess of 450°C. Samples exceeding about 700°C melted rapidly and erased all growth. Many samples became coated in a red crust-forming mineral, likely an iron oxide, which appears to stifle wire growth. Holding samples directly inside the inner cone of a Bunsen burner flame produced wires up to 7 mm long in one hour. The best results were achieved by heating samples in a crucible with a silver solder flux, which produced many wires longer than 1 cm. The two most important factors for successful wire growth were 1) controlling the temperature range and gradient, and 2) preventing metal oxides, especially iron oxides, from forming. The typical resulting wire morphology was a blade or neuron-shaped base at the acanthite interface, which transitioned to a cylinder and terminated in a wisp or curl. The scale of the wires appears to be a continuum, ranging from a couple microns to several millimeters in diameter. It was observed on every scale that wires originated in little patches of fine solitary growths. As each wire extended, they coalesced with adjacent wires, producing larger codirectional aggregates with a striated surface. A 200-micron long, 100-micron wide blade of synthetic wire silver was analyzed with single crystal diffractometry. The results were distinctly polycrystalline, as complete Loue rings of heterogeneous intensity were produced.			

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NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Jacob L. Brown, Jason R. Leigh, Ryan Marquardt, Cambria R. Puffenberger, Daniel J. Stank, Kaleb M. Pauley	Faculty, Undergraduate Student	Science and Mathematics	Optimization of fluorescent phagocytic assay using apoptotic cells	Jacob L. Brown, Jason R. Leigh, Ryan Marquardt, Cambria R. Puffenberger, Daniel J. Stank, Kaleb M. Pauley
	Sjögren's Syndrome is a systemic autoimmune disease that primarily affects the exocrine glands and is characterized by severe dry eyes and mouth. Previous studies have shown that there are elevated levels of the microRNA miR-146a in Sjögren's patients. Mir-146a is a microRNA that has been found to be involved in down regulating inflammation. Yet, in patients with Sjögren's Syndrome, there is a large upregulation of miR-146a that exists alongside chronic inflammation. This led us to investigate the role of miR-146a in Sjögren's Syndrome. We found that miR-146a upregulates phagocytosis of E. coli by human macrophages. Therefore, we hypothesized that this upregulation of phagocytosis should also apply to apoptotic cells. In order to test this hypothesis, we had to optimize the induction of apoptosis in Jurkat cells and fluorescently label them for the phagocytosis assay. We induced apoptosis using a topoisomerase inhibitor etoposide and performed a dose response curve to determine the optimal etoposide concentration. We then assessed Jurkat viability using trypan blue exclusion and Annexin V staining. We then fluorescently labeled the apoptotic cells with phrodo staining. Phrodo is a pH-sensitive fluorophore that only fluoresces in acidic pH. Finally we co-incubated the fluorescently labeled apoptotic jurkats with human macrophages (THP-1 cells) at a 4:1 ratio for the phagocytosis assay. We tested 10 to 100 micromolar concentrations of etoposide and found the 40 micromolar concentration yielded optimal levels of apoptosis in the Jurkat cells. The phrodo staining procedure was developed to fluorescently label the apoptotic cells. Lastly, we performed the phagocytosis assay by incubating the fluorescently labeled apoptotic jurkat cells with THP-1 human macrophages which resulted in phagocytosis of the apoptotic Jurkats. The conditions for the assay were optimized, and we plan to continue further research on miR-146a to investigate its effect on the phagocytosis of apoptotic cells.			
Victoria Couser	Undergraduate Student	Science and Mathematics	Identifying the Ordinary High Water Mark through the Use of UAVs	Victoria Couser
	The accurate determination of the Ordinary High Water Mark (OHWM) on streams and shorelines has taken on an increased importance since the recent redefinition of "Waters of the United States" by the U.S EPA. The redefinition has increased the amount of land and water over which the federal government has jurisdiction. The OHWM helps define the limits of those jurisdictional waters. Accurate, consistent, and efficient OHWM delineation practices are thus essential to proper and effective implementation of these laws and regulations by the U.S. Army Corps of Engineers Regulatory Program and other agencies. Through this research it is shown that using unmanned aerial vehicles (UAVs) to capture aerial photography can be helpful in the identification of the OHWM where accessibility, safety, and/or cost might make normal delineation techniques prohibitive. For this research a quadcopter UAV was flown for the purpose of taking aerial photographs of the banks of streams in southwest Ohio. The photos were then used to see if the natural indicators of the OHWM were apparent. At many of the streams photographs were easy to collect in a timely manner. Natural indicators such as change in vegetation and soil were present. However due to restrictive conditions at some streams such as overgrown grasses and trees, the OHWM was difficult to discern. The verification of the adequacy and accuracy of the OHWM identification, based on the photographs and videos at the studied streams, was handled by wading into the streams or climbing down over the streambanks and inserting colored flags along the line that defined the OHWM. These flags were identifiable in the UAV images and thus allowed for an assessment of the usefulness of such images for defining the OHWM. In locations where UAVs can be flown, any party who is interested in making a quick and efficient determination of the Ordinary High Water Mark should consider the use of UAVs.			
Nolan Shula	Undergraduate Student	Science and Mathematics	Laboratory Determination of Porosity for a Vugular Carbonate Core Section by Water Immersion Method - Is It Effective Porosity?	Nolan Shula
	Porosity is one of the most vital characteristics in hydrocarbon reservoir evaluations, affecting the methods implemented in the completion process and the efficiency of the production process. Several methods are used for porosity calculations, but due to both lithologic and downhole drilling factors, these values can range more than ± 5%. Also, most limestone reservoirs contain multiple-porosity systems, which lead to effective porosity concerns, especially when secondary porosity is a significant factor. Therefore, through both geophysical wireline log analysis and basic laboratory analyses, this project compared total and effective porosity values of a vugular Onondaga Limestone pinnacle reef core section from Cattaraugus County, New York. For the geophysical method, a bulk density value was taken from a formation bulk density log; total porosity was then calculated both graphically using a cross plot and numerically. For the laboratory analyses, first the measured dry weight of the sample and the known grain density were used to calculate total porosity. Next, volumetric porosity analysis was completed by determining the total displacement of the core in a water bath (after prolonged immersion) subtracted from the total calculated volume of the core. The wireline log method provided total porosities of 10.8% to 13.0%, while the weight based total porosity calculation was 15.0% and the volumetric analysis provided an average value of 7.4%. It was found that the best method for determining total porosity involved the use of the dry weight and grain density values. Also, due to the nature of the vugular carbonate core, the volumetric analysis failed to determine the total porosity, but instead provided the effective porosity of the core. While this study produced calculated total porosity and laboratory-derived effective porosity values, a total porosity from a simple immersion test could not be determined with the laboratory tools at hand.			
Andrew B. Berman, Kelsey Gentry, Alexander K. Lee, Molly Yandrofski, Malorie Young, Robert L. Paris	Faculty, Undergraduate Student	Science and Mathematics	Determining concentration of alpha gliadin subcomponent in wheat	Andrew B. Berman, Kelsey Gentry, Alexander K. Lee, Molly Yandrofski, Malorie Young, Robert L. Paris
	Celiac Disease is a gluten hypersensitive response caused by genetic and environmental factors. Genetically, the celiac patient's T-cells respond to gluten derived peptides presented by either HLA-DQ2 or HLA-DQ8 that leads to the destruction of intestinal epithelial cells. Environmentally, celiac disease is triggered by the ingestion of gluten, which is a conglomeration of several different proteins, including gliadin and glutenin found in wheat (Triticum aestivum L.), barley (Hordeum vulgare L.), and rye (Secale cereale L.). Gliadin is further subdivided into alpha, beta, and gamma components. Studies indicate that an indigestible alpha gliadin subcomponent (33 mer), rich in proline and glutamine, is responsible for the hypersensitivity response. Determination of 33 mer concentration in wheat lines would be beneficial to future development of wheat lines with low, or no, 33 mer present. We extracted protein from wheat flour and utilized western blot techniques in order to quantify the concentration of alpha gliadin. This will be a useful tool in future research focused on development of wheat lines that may be suitable for consumption by individuals with celiac disease without the adverse effects.			

POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Mark Philip Guilliams, Samantha Jean Lefaive, Michael David Sprague	Undergraduate Student	Science and Mathematics	Microstructures Produced by Hadrosaur Bones from Alaska and Wyoming	Mark Philip Guilliams, Samantha Jean Lefaive, Michael David Sprague
	Since 2005 when Dr. Mary Schweitzer made the first discovery, microstructures with the appearance of "osteocytes" and "blood vessels" have been recovered from fossils of various localities, dating back as far as the Triassic. The majority of these finds have come from dense, cortical bone but recently have been discovered in cancellous bone. Since her initial discovery, Schweitzer has done a lot of work to verify that these microstructures are not biofilms, but instead are original organic tissue. This project was looking to get similar results to Schweitzer's research and to find a simple test method for the initial discovery of soft tissue using easily available supplies. Fragments of "float" Edmontosaurus bones were collected from Eastern Wyoming and "in-situ" hadrosaur bones collected from Alaska. Two different techniques were used, the first method implemented daily changes of a 0.5 M solution of EDTA and the second was a solution of 2M HCl; both are known techniques for demineralizing modern bone. Using the solution of HCl, the bones were subjected to daily solution changes until completely demineralized. The sediment left over was then used to make covered slides, which were then analyzed and photographed with a petrographic scope. This analysis revealed certain microstructures of several types that had been freed from the bone. Comparing the microstructures with previous work done by other researchers indicates that these structures have the morphological appearance of original soft tissue blood vessels and osteocytes. In every HCl sample, the material from Wyoming produced highly fragmented sections of these "blood vessels", while the Alaska material produced larger, abundant "blood vessels" and in addition, rarer "osteocytes". These samples were of cancellous bone and ossified tendon. The EDTA samples have yet to produce any original organic structures. Further stain tests will be performed for verification of the organic nature of the structures. The ease in finding these microstructures using basic supplies and in weathered bones seems to indicate the possibility of original organic preservation in fossil bones may be quite prevalent, possibly even the norm.			
Connor J. Gilmour, Randy Howell, David Paulding, Charles William Reynolds, Mark A. Gathany	Faculty, Undergraduate Student	Science and Mathematics	Relations Between Stream Chemistry, Fish Diversity, and Land Use in the Upper Little Miami Watershed	Connor J. Gilmour, Randy Howell, David Paulding, Charles William Reynolds, Mark A. Gathany
	Streams are susceptible to numerous threats to their water quality and biodiversity. In southwest Ohio a major driver of these impacts is associated with current agricultural practices and associated legacy effects. These structural and chemical impacts are known to affect biodiversity in these streams. The objective of this study was to document and examine relationships among land-use/land cover, stream chemistry, and fish diversity in the headwaters streams of the Little Miami Watershed. Three streams (Little Miami River, Massies Creek - North Fork, and Massies Creek - South Fork) were sampled in the upper headwaters as well as downstream. Air and water temperature, pH, dissolved oxygen, alkalinity, hardness and turbidity were measured in early September and late November. With the exception of temperature, the measurement of these parameters was generally consistent between sampling periods ($CV < 22$). A total of 517 fish were collected using an electroshock backpack along 75m stretches at the sites ($N = 6$). In total 25 species were identified while individual sites yielded 7 - 12 species each. Fish diversity (Simpson's Diversity, 1 - D) at our sites ranged between 0.77 and 0.86. A significant correlation ($r = 0.918$, $p = 0.01$) was found between fish diversity and the % of developed land in these watersheds. Our landscape analysis revealed that all six watersheds had 86 - 97% agricultural land use which had a negative ($r = -0.796$), but not statistically significant correlation ($p = 0.0581$) impact on fish diversity. This work will serve as the baseline for future study of land use impacts on fish diversity, phylogeography, and water quality.			
Emily Jackson	Undergraduate Student	Science and Mathematics	Correlation of Navajo-Aztet-Nugget Sandstones, Western United States	Emily Jackson
	Lower and middle Jurassic sandstones across western North America were correlated using stratigraphic thickness and lithofacies data obtained from the AAPG-produced Correlation of Stratigraphic Units of North America (COSUNA) data charts and spreadsheets. An isopach map and a series of stratigraphic cross-sections were created to display the lateral and horizontal extent of the correlated formations. The goal was to determine lateral equivalents of the primarily lower Jurassic Navajo Sandstone from Utah, Arizona, and Colorado. The Nugget Sandstone of Wyoming, Utah, and southern Idaho, and the Aztec Sandstone of southeastern California and southern Nevada were determined to be laterally equivalent to the Navajo. Both sandstones were primarily lower to middle Jurassic, but outcrops in southern California extended into the upper Triassic. One unnamed upper Triassic quartzite bed in southern California may also have been an equivalent of the Aztec Sandstone. The sandstones were primarily underlain by a shaley or silty mudstone, with the exception of the Aztec in California, which was underlain by a volcanic bed in some outcrops. Similarly, silty or shaley mudstones overlaid the sandstones, with rare occurrences of the Twin Creek Limestone in southern Wyoming and northern Utah, and a volcanic ash bed in southern California. The Navajo was it most recognizable of the sandstones; however, all of the sandstones were determined to be lithostratigraphically equivalent, although diachronous in age. Thicknesses of the sandstones ranged from 5 meters (Nugget) in northern Wyoming to 1400 meters (Aztec) in southern Nevada, with an average thickness of around 381 meters. The correlated sandstones cover an area of approximately 446,000 km2. The Navajo has generally been accepted as an eolian erg; however, given the thickness and lateral extent of the formation, which exceeded the 30 meter average thickness for modern eolian erg deposits, the depositional environment of the Navajo Sandstone should be reevaluated.			

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POSTER PRESENTATIONS *(continued)*

NAME	POSITION	DEPARTMENT	ABSTRACT TITLE	ABSTRACT AUTHORS
Brett M. Kendra	Undergraduate Student	Science and Mathematics	Using UAVs to Establish a Visual Baseline of Flow Conditions at USGS Stream Gauge Sites	Brett M. Kendra
	USGS stream gauge stations associated with the National Water Information System (NWIS) accurately measure various streamflow parameters, including stage height and discharge. However, photographic documentation of streamflow conditions is severely lacking for most gauge stations. This project aimed to fill this void in documentation by capturing aerial photographs of streamflow conditions using low altitude UAV photography. The photographs were taken at two stream gauge stations within the Little Miami River watershed located in southwestern Ohio over a seven month period. This time span encompassed three seasons, beginning mid fall 2015, and ending early spring 2016. The timestamp associated with each photograph was matched with the appropriate real-time streamflow data collected by the stream gauge stations. This data can be easily accessed by anyone through the USGS water data web interface http://waterdata.usgs.gov/nwis. The outcome of this project was a photographic catalog that sequenced the UAV photographs and the associated gauge data for each stream during the study period. The primary goal of this project was to produce a sequence of photographs that accurately represents the range of streamflow conditions during the time of this study, and provide a visual baseline for quickly estimating these flow conditions. The range in stage height photographed for the Little Miami River was between 1.73 and 3.24 feet, while the discharge was between 83 and 464 ft^3/s. The range in stage height for Massie's Creek was between 2.57 and 4.03 feet, while the discharge was between 31 and 315 ft^3/s. The UAV photographs depicting the streamflow conditions were visually analyzed to determine if noticeable differences between various flow conditions could be discerned. It was determined that even minor variations in stage height and discharge could be recognized. This study provides an initial visual baseline for the flow conditions at just two gauge stations. More work needs to be done to determine if UAV photographs can be used to quickly estimate streamflow conditions on ungauged stream segments in watershed areas with similar characteristics. The UAV approach provides cost efficiency, safety, and the ability to get to inaccessible areas.			
Rachel Holmes, Kathryn Meyer	Undergraduate Student	Science and Mathematics	Preliminary Results of Radiohalos from Four Sites of Precambrian Minnesota Granite	Rachel Holmes, Kathryn Meyer
	Radiohalo research is a relatively new area of scientific investigation, the significance of which has been shown by authors such as Snelling and Gentry. This study examines the prevalence of the radiohalos of polonium isotopes and uranium isotopes within biotite flakes generated by radioactive zircon crystals. The radiohalos result from damage caused by the emanation of hundreds of millions of alpha particles from the zircon crystals during the decay process. The samples were obtained from drill cores granted to us by the Drill Core Library in Hibbing, Minnesota. The Precambrian granite core sections were crushed and small biotite flakes picked out. The "Scotch tape" method was used to separate the many layers of biotite flakes which were then placed on glass slides and analyzed under the microscope. Center radiohalos were marked, taken a picture of using the petrographic microscope, measured, and logged. We prepared forty slides per sample with biotite flakes scattered across each slide. We found thirty-eight radiohalos total in MN-1; roughly thirty-five radiohalos total in MN-2A; five radiohalos total in MN-2B; and seventeen radiohalos total MN-3A. All of the radiohalos contain either holes or zircons at their center and majority appear to be made from polonium. These are initial results and further analysis will continue to be conducted. This study contributes to a larger study of Precambrian granite with a focus on Minnesota core samples.			
Connor Smith	Undergraduate Student	Science and Mathematics	Pike County, OH: A case study in building repeatable method for creating a landslide susceptibility map.	Connor Smith
	This project developed a repeatable method for creating landslide susceptibility maps in Ohio using ESRI's ArcGIS program. The method would be repeatable for other states where high quality LiDAR data is available. Pike County, OH was selected for its landslide-favorable topography, then the target area was further constrained to the northeast corner. Scientific literature suggested factors affecting slope failure: slope angle, land use, presence of previous failures, surficial geology, soil properties, and vegetation. GIS data was gathered online, fit to the target area by the Clip and Raster Clip tools, and properly symbolized. A grid was placed over the area using the Create Fishnet tool, then using Ohio Department of Natural Resources (ODNR) imagery as well as techniques from GIS literature, potential landslides were delineated by polygon drawing. After creating a landslide inventory, the factors affecting slope failure were calculated, properly scaled by the Reclassify tool, and then aggregated together using the Raster Calculator tool. The aggregation formula was determined by giving greater weight to factors more often present for slope failures. The area was field checked and ground photographed on March 12, 2016, confirming the landslides identified by photograph. Landslides more recent than the ODNR imagery were noted and photographed. After researching the online availability of statewide imagery, it was concluded that this method would be repeatable for many states in the USA, although some do not have high resolution imagery freely available.			
Michael Prague	Undergraduate Student	Science and Mathematics	On the Aquatic Habits of Sauropods – An Antiquated Theory in Need of Revival?	Michael Prague
	When sauropods were first discovered, they were thought to have been restricted to life in the water due to their immense size. This image of sauropods was dismissed in the 1950's when it was determined that the lungs would have been placed under massive amounts of pressure at these depths, rendering breathing nearly impossible (Kermack, 1951). However, these experiments failed to consider pneumaticity of sauropod vertebrae and were later dismissed. Sauropods possessed pneumatic features in all their presacral vertebrae, originally identified as weight-saving structures. These features kept the strength and integrity of the bone while dramatically reducing its weight. The postcranial skeletal pneumaticity is indicative of a physical relationship between the vertebral column and the pulmonary system. In particular, neosauropods show signs of air sacs in the lower back and hip regions (Wedel, 2003). A similar phenomenon is exhibited in modern birds. Other sauropods, by contrast, only possess such pneumatic features in the cervical vertebrae. The effects of a highly pneumatized skeleton on a sauropod's buoyancy were not considered until the 1970s. Henderson (2004) concluded in his study on sauropod buoyancy that it would be impossible for sauropods to walk in water deeper than chest-height, as their high calculated buoyancy would cause the animal to capsize. While Henderson (2004) and Kermack (1951) came to reasonable conclusions, perhaps the idea of semi-aquatic sauropods should not be ruled out. If this hypothesis were to be investigated further, there are several criteria scientists might consider. For instance, perhaps sauropods possessed reinforced peripheral airways that allowed their lungs to collapse when under higher pressures, similar to those in deep-diving whales and seals– something that is difficult to preserve in the fossil record. Additionally, if sauropods had a higher muscle mass than generally assumed, it would negatively affect the animals' buoyancy calculated in Henderson's (2004) experiments, helping to ballast the animal and prevent capsizing. These proposed adaptations are theoretical, and would not be preserved in the fossil record. Overall, the evidence painting sauropods as exclusively terrestrial animals is based on assumptions that perhaps should be reconsidered in light of some of these proposed adaptations.			


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